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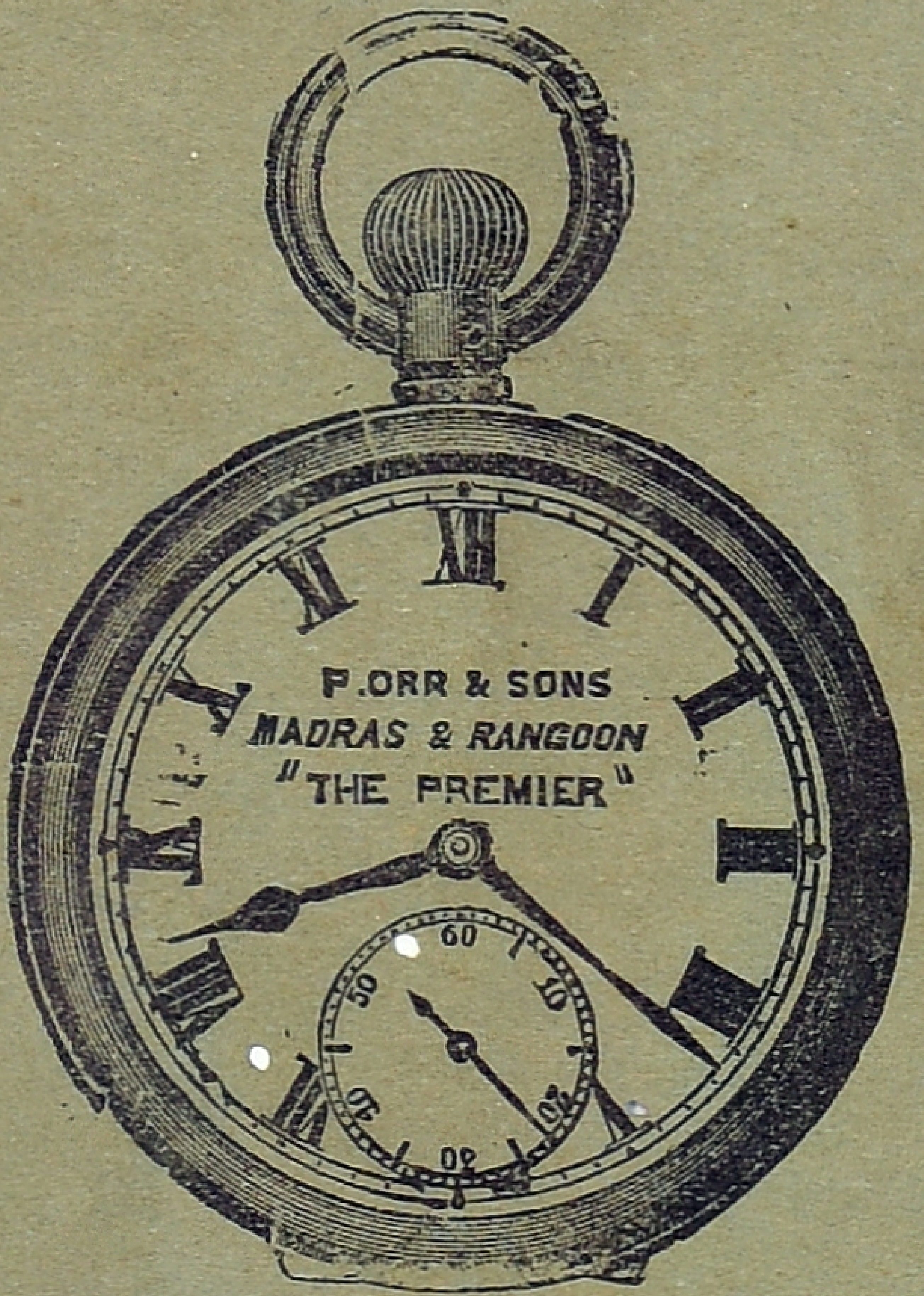

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The Madras Forest College Magazine.

Vol. III. DECEMBER, 1918. No. 2.

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THE

Madras Forest College Magazine.

Published Quarterly.

Vol. III. December, 1918. No. 2.

Ourselves.

The Annual Athletic Sports of the College were held on the 21st September 1918. The occasion is of historic interest as it marks the first time on which the sports were held on the College Athletic grounds. Of the completion of the latter in a short space of about a month, the management can justly be proud. We should be duly grateful to Government for their generous sanction for the grounds during the present financial stress caused by the War.

The sports were a success from many points of view, and the students concerned did credit to the College motto "*Mens sana in corpore sano.*" A novel feature of this year's programme was the 'log cutting' event suggested by Mr. C. B. Dawson. Another was the form of most of the first prizes, *viz,* Post Office Cash Certificates for Rs. 10/- each. A detailed account of the Sports is published elsewhere.

* * * * *

The Madras Forest College students are to be congratulated on having contributed Rs. 50/- or 100/- each, in all Rs. 5000/- in response to a special appeal, for the War loan.

* * * * *

It is gratifying to note that Influenza is having much less claim on the Forest College estate than elsewhere, the supervision and condition of the sanitation here, being perhaps partly responsible for the fact.

* * * * *

The College Touring season started on Oct. 3rd — the Seniors to Komattiyeri [S. Vellore Division] and the Juniors to Walliar [C. Coimbatore Division]. On information received from the D. F. O. just as the kit was starting, it was necessary to cancel the Juniors' Tour to Mount Stuart. The College returned to Headquarters for a week on November 2nd for the Periodical Examinations.

* * * * *

The 1918-20 Division consists of 33 students under the following categories :—

Madras Government ;	N. Circle	...	...	5
	C. Circle	...	...	8
	S. Circle	...	...	7
	W. Circle	...	...	7
Coorg Government ;	...	...	...	1
Ceylon Government ;	...	...	...	4
Hyderabad Government ;	...	...	...	1

* * * * *

We much regret to learn of the death of the little daughter of Mr. Marudachalam Pillai — the College storekeeper — to whom we tender our sincere sympathy.

Memorandum dated 1912 on the Administration and establishment of the French Forest Department as compared with Madras.

Madras.

Area of Reserved Forests and reserved lands : 19,570 sq. miles

France.

		sq. miles.
Area of Reserved Forests.		4609
„ Communal	„	7603
„ Private	„	2,0209

Director General	No. 1
Administrators	„ 3

(The Administrators now called Inspector Generals are in charge respectively of general administration, Working Plans and exploitation and Reboisement)

The above are all Forest Officers who have risen from the lowest gazetted rank.

There are also two Conservators and several Deputy and Assistant Conservators attached to the Headquarters Staff: also Directors and Staff of two Forest Colleges :

	No.
Conservators ...	3
District Forest Officers ...	32
*21 Assistants in the Provincial service for leave vacancies etc. Rangers ...	156
Deputy Rangers ...	159
Foresters	233
Forest Gaurds ...	1238

* or fewer

	sq. miles.
Conservator's charge ...	6523
District Forest Officer's. charge	612
Range Officer's ...	129
Forest Guard's ...	16

	No.
Circle & District Staff	
Conservators ...	32
Deputy Conservators in charge of a Division ...	200
Assistant	442
	674
Rangers ...	1030
Forest Guards ...	2720

(for the Reserved Forests only) there is a separate establishment for the Communal Forests.

	sq. miles.
Conservator's charge ...	144
Deputy Conservator's ...	23

(each Deputy Conservator has 2 Assistants)

(They have also to advise on the Administration of Communal Forests)

Ranger's charge ...	4
Forest Guard's ...	1.7

Budget.

Madras.

RECEIPTS :-

£. 259,086 : Rs. 38,86, 296 ; per square mile £. 13 : Rs. 199/-

EXPENDITURE.

£. 199,023 : Rs. 29,85,358 per square mile £. 10/- : Rs. 150/-

NET REVENUE.

£. 60,062 : Rs. 9,00,938 per square mile £. 3/- and odd Rs. 46/-

France 1907.

RECEIPTS :-

£. 1,211,656 : Rs. 181,74,840 per square mile £. 263 nearly Rs. 3945.

EXPENDITURE :-

£. 558,064 : Rs. 83,70,960/- per square mile £. 121/- Rs. 1815/-

NET REVENUE :-

£. 653,592 : Rs. 98,03,880/- per square mile £. 142 : Rs. 2130/-

The expenditure includes the following items of interest :-

Pay of Gazetted officers :-
£. 100,000 : Rs. 15,00,000/-

Pay of non-gazetted officers :-
£- 114,160 : Rs. 17,12,400/-

Cost of two Forest Colleges :-
£. 7,440 : Rs. 1,11,600/-

Improvement and maintenance of the Forest and water courses :-
£. 49,580 : Rs. 7,43,700/-

Restoration and fixing of unstable mountain tracts :-
£. 135,040 : Rs. 20,25,600/-

Working Plans :–
£. 16,600 : Rs. 2,49,000/-

Destruction of wolves and noxious animals :–
£. 1,040 : Rs. 15,600/-

It must be remembered that there is practically no such thing as departmental working in France: everything is done by contract.

In Germany on the contrary departmental work is almost universal. Consequently, the receipts and expenditure are very much higher.

RECEIPTS :– 15–18 million sterling.

NET REVENUE :– £. 1,200,000/-

'Indian Forester' August 1908 gives German State Forests Annual Revenue :–

£. 22,000,000.

'Indian Forester' Sep. 1910 :–

German State Forests : 16,000 sq. miles. Therefore nett revenue per square mile £. 75.

Gross revenue per square mile £. 1,375 Schlich gives area of German State Forests as 17,711 square miles.

The French Colonial Forest Budgets are also worthy of note, as the conditions are not unlike those of Madras.

Algeria.

Receipts :-

£. 180,000/- Rs. 27,00,000/-

Ordinary expenditure :-

£. 140,417/- Rs. 21,06,255/-

Extraordinary expenditure (raised by loans) :-

£. 48,000 Rs. 7,20,000.

Territories south of Algeria.

Receipts :- £. 100/- Rs. 1,500/-

Expenditure ;-

£. 6634/- Rs. 99,510/-

Madras.

Rs. 73,751 or £. 4,916 2½ % spent on rest houses and sub-ordinates' quarters.

Tunis.

Receipts :-

£. 35,968: Rs. 5,39,520.

Expenditure :-

£. 25,986 : Rs. 3,88,790 (of which £. 1864 or Rs. 27,960 or 7 % of expenditure is spent on Forest rest houses).

Cochin China.

Receipts :-

£. 48,480 : Rs. 7,27,200.

Expenditure :-

£. 29,520 : Rs. 4,42,800 of which £. 19,360 or Rs. 2,90,400 is spent on the European Establishment and £. 2,240 or Rs. 33,600/- on the Native Establishment.

MADRAS FOREST COLLEGE DEMONSTRATION FOREST.

About 78 acres of the College estate are now being worked as a demonstration forest under the Uniform Method. The area has been divided into three compartments by natural boundaries (for purposes of nomenclature only) and by artificial lines into 30 strips for purposes of exploitation. Each three strips are combined into a Periodic block of which there are thus ten. The oldest periodic block is treated annually by the Senior division under Regeneration fellings. Final fellings (clear) in the oldest strip, secondary fellings (roughly $\frac{2}{3}$ of the stock) in the next oldest strip, and seedling fellings (roughly 1/3 of the stock) in the youngest strip of the Periodic block. Simultaneously the Junior division take in hand the two youngest Periodic blocks for cultural operations, weeding, sowing, clearing and if necessary, thinning.

The whole forest is consequently traversed once in ten years for major operations, and once in five years for minor operations.

To give the project a fair start broad-leaved species of all kinds are being sown in the oldest as well as the two youngest Periodic Blocks. It is hoped eventually to rely on natural regeneration only.

The students surveyed and demarcated the Forest and carry out nearly the whole of the operations with the exception of clearing the prickly pear from the itteri — the latter work is being undertaken on contract.

The result should be a demonstration forest stocked with the broad leaved species that have proved themselves to be the fittest to

survive, raised and worked by the students, on the Uniform Method. If studied intelligently and in conjunction with the photographs and diagrams that have been obtained from Dehra, and with the model of a Uniform Forest about to be prepared for the museum, students will in future be enabled to form a much clearer grasp of this method than has been possible for their predecessors.

Incidentally, the working of the forest by the students will afford constant practice in the erection of cairns of all kinds, from the simplest to the most elaborate type, fire protection, volume estimation, tests of dryage and shrinkage, maintainance of control books, preparation of working plans, charcoal manufacture, line-clearing, road-making, Sandal cultue, and the eradication of young prickly pear.

Additional works: Valuation Surveys & calculation of ock: bridge-construction: Hay-making: line-clearing: pruning ansplanting:

F. L. C. Cowley-Brown.

Under=Planting in Nilambur Teak PLANTATIONS.

The Nilambur Teak Plantations were begun in 1842 and ever since then they have been planted and grown over the area to the exclusion of other species. Some exotics such as Aleurites moluccana, Manihot Glaziovii, Hevea Braziliensis, Swietenia mahagoni, Swietenia macrophylla were introduced in mixture with the teak but they proved failures. It is often suspected, that a pure crop of teak would render the soil toxic at least after some years. The chief principle in Forestry is to look at least a century ahead and to rectify matters beforehand if possible.

The teak has not got much foliage, I mean compared with shade bearing species, and a large portion of the nutrition goes to build up the cells in the stem and branches. The little foliage that falls on the ground does not form a good humus. What little is formed is either blown away by wind or burnt away after the final fellings. As the soil in most of the Nilambur plantations is rich alluvium, there is not much to fear for a long time to come. But it is not a machine to work everlastingly without being enriched in any way. The soil in the adjoining forst has a little humus ranging from 3 to 6 inches deep and there is every possibility of its remaining so for ever, granting the protection continues as it is. But different is the case in the teak plantations. A slight diminution in the volume of an individual tree entails a great deficit in the income. Hence steps must be taken, as a matter of fact are taken in some areas, to rectify this. The only efficient way is to introduce an underwood. This under-wood has an additional advantage of naturally pruning off the epicormic branches on the stems of teak trees.

In introducing an underwood the chief considerations to be observed are as follows. Firstly, the species introduced must be a large foliaged shade bearing one ; secondly it must be a soil improving species; thirdly it must grow up so as to be able to remove the epicormic branches on the upper part of the stem also ; fourthly, it must be a timber yielding one or otherwise useful, for by selling the produce we may at least meet with the cost of its introduction and maintenance ; fifthly, it must be introduced after the teak is given a fair start so that it may not over-top the latter ; sixthly, it must be such as to be eradicated easily at the Final fellings as otherwise it may become a pest and defeat our primary object ; seventhly, the species must attain its age of exploitability or age of useful productiveness such as poles &c for agricultural purposes within the exploitable age of teak (70 years) minus

the number of years given to the teak as a start or a simple fraction of it such as 1/2 or 1/3 so that the crop may be realized once, twice or thrice as the case may be before the final fellings of teak.

We shall now suggest some species and see whether they fulfil our considerations. The easiest and safest course is to introduce the species that is naturally growing in the locality. Xylia dolabriformis is one of the kind. This thrives well on laterite soils. It requires a good amount of shade till it establishes itself, but afterwards it requires light and flourishes better in it and has a tendency to form a pure crop of its own especially on the 2nd class soils. On the first class areas the teak grows well and xylia may be introduced after teak is given a start of at least 6 years.

Next comes Hopea parviflora. This is found growing naturally in the Plantation of 1851. The soil is 2nd class. This species requires a soil retentive of much moisture. It is thought that it flourishes better in light and experiments are now being carried out at Mundandorai forests. This is a fast growing species although not so fast as teak. After the 1st thinnings of teak, Hopea seeds may be sown in regular lines between the teak rows and they should never be sown broad-cast for it cannot be successfully tended afterwards. They must be weeded during their earlier stages. Where it is found naturally growing, the saplings must be freed by removing other species growing under teak. Financially Hopea will not prove useless. The Revolution of teak is probably to be 70 years. If Hopea is sown at the 10th year of teak two crops of Hopea may be raised within the remaining 60 years for it attains its marketable age in 30 years. Experiments are still to be made to find out the exact nature of its growth. Its introduction however, is confronted with many difficulties. The seeds are difficult to preserve and perish easily in transport. The seedlings cannot be raised

in nurseries for their long and tender tap roots do not stand transplanting or pricking out. The seeds must be sown as soon as they fall from the tree which is not always possible.

Artocarpus intigrifolia may be introduced as an underwood. But its seeds are difficult to obtain in large quantities. If they are a little under or over ripe, they do not germinate. In transport they generally become over-ripe and are rendered useless.

* Cassia fistula is good being a fast growing Leguminous plant. It protects and enriches the soil but as it does not grow to a very large size it cannot be expected to remove epicormic branches on the upper part of the stems of the teak. Its bark may be used for tanning purposes. Lagerstroemia Flos Reginea is very useful in swampy and water-logged places. In such regions it grows equally well as the teak and suppresses the epicormic branches.

Lastly and the most important is the introduction of bamboo. It is effective and very advantageous. It grows well on the 1st & 2nd class soils, but it should not be introduced in the 2nd class for it may out-grow the teak itself. It can be very safely introduced in the 1st class soil after the teak is given a good start. The bamboo seeds may be sown broad-cast. It grows up quickly in dense mass and to a great height so that the epicormic branches near the top of the trees will be removed. There is large demand for the bamboos for rafting and other purposes and it fetches a good price of Rs. 5 to 7 per 100. As it has a superficial root system, it does not exhaust the soil; but on the other hand yields a good humus. Its eradication is not difficult at the final fellings. It can be cut down easily and when the clump is set fire to

* [These (Cassia fistula and Lagerstroemia Flos Reginae) are not well suited for the purpose of underplanting, as they are deciduous. Editor.]

the fire goes down to the rhizomes and burns them. Next year a few tender culms may appear and these can be removed along the weedings. The chief defect in it is that it is conducive to fires. This can be warded off by rigid protection and as the operations in these Plantations are concentrated this is not impossible.

M. Umapathi.

[Our readers are referred to pages 16—18 of Vol. I No. 1, where appears a similar article on the subject of underplanting; further discussion on this interesting subject is invited. Editor.]

The Collection of Minor Forest Produce

in East Kurnool District.

———o———

The Collection of Minor Forest Produce forms one of the chief items of works of the District. It is that which keeps the Chenchoos at work almost all the year round; it is that which feeds them and makes them active; it is that which prevents them from committing crimes and in fine it supplies the wants of the teeming millions of the country and fetches a good revenue.

All the works of this District except building and road works are extracted from the hill tribes known as Chenchus. There are about 16 gudems all under the control of the Forest Department. Either a Deputy Ranger or a Forester is appointed over each Gudem, and he will engage the chenchoos daily on some work or other and disburse their wages in grains. He has to maintain the Shop Accounts, Timber Accounts etc.

To come to the article proper: the thirtyfirst day of January passes, Firetracing operation ceases and Forest produce collection commences.

The products that are found in abundance in this District are honey & wax, dyes & tans, oil seeds and other forest produce and also skins and horns in small quantity as killing of animals is not encouraged.

The collection season commences with tans, because at this season no other produce is ripe for collection. Moreover it is easy to strip off the bark in this season and above all it is in great demand due to the present war.

The barks of Cassia auriculata, Cassia fistula and Anogeissus latifolia and also the leaves of the last species form the tanning stuffs of the District. The chenchoos collect the barks in different ways for various species. For collecting Cassia auriculata bark, they first cut the branches of girths above 1½-inches, collect them and bring them under a shady tree. They then with the help of small sticks of about 1½ft. long and 6 inches girth, extract the bark by placing the green branches over a stone and beating them. The bark is then dried in shade.

The collection of the barks of Cassia fistula and Anogeissus latifolia is easier than that of Cassia auriculata. In the former case they fell the trees and strip off the bark by strongly beating against stems and branches with their turned axes. They collect the bark and dry them under shade. It is found that they are able to collect from 2 to 3 maunds of dry bark every day whereas the collection of dry Tangedu bark (Cassia auriculata) is possible only from 1 to 1½ maunds a day.

The collection of Chirman (Anogeissus latifolia) leaves does not take place in these months, because the leaves are at the shedding stage. This collection commences early in the month of May. The tender rosy leaves known as "Rosy Sumac" are collected, dried under shade, powdered and packed in gunny bags. Again, when the tender leaves of the tree turn green in the months of June and July when they are known as "Green Sumac", they are gathered, dried under shade and finely powdered; then it is filled in gunny bags. The collecting charges of Rosy Sumac is twelve annas and that of Green Sumac is six annas per bag.

Large quantities of Pongamia glabra seeds, soap nuts and tamarind are collected during the months of February to June. To deal with the collection of these products in detail is only to try the reader's patience; suffice it to say that they are either plucked from the tree or picked up. It is worth noting that the rates for collecting Pongamia glabra seeds and soap nuts are very low when compared with that of tamarind. A man is able to earn 8 annas a day, on an average, and even more if he is a little bit hardworking, whereas he may be able and that with much difficulty, to earn only four annas a day by the collection of soap nuts etc. This is a very low rate for those poor chenchus, who are growing more & more civilised under the proper care of the Forest Department and the special chenchoo officer. The rates fixed for soap nuts are only six pies per measure as against eight pies per measure for seeds of Pongamia glabra. Recently on the recommendation of the special chenchoo officer the collection rate of Strychnos nux-vomica seeds is raised by three pies. In similar manner if the rate of collection of soap nut is raised, I hope the hardworking chenchoos will work with increased zeal and perseverance.

The month of May with its green canopy set with bright flowers of various hues, enchants the eye of man, the eye of beast and especially that of honey sucker. May brings harmony to the humming bee. The bee with happiness alights on the flower, sucks up honey and takes it to store in its house made of wax. It thinks not that the hand of man will be upon its home, it thinks not that its future hopes–whatever they may be—will be undone by man and it thinks not that man, one day, will turn out to be its enemy and plunder its home and drive it away.

Some bees construct their hives upon the branches of high trees and some in a gigantic size build in deep ravines and on the impending rocks of enormous height.

The collection of honey is a difficult task; it costs the life of a man if due precautions are not taken. The man has to bear the pain caused by the severe sting of the bees if any. When the collection is done in *selas* it is quite horrible to look at the man hanging in the air with a half burnt torch in one hand producing smoke in profusion and a long bamboo stick with a net attached to it in the other. He is held down by a number of persons on the hill by means of a strong rope passing around his waist. The people above carefully hold him so that they may not slip him. He aerates the torch by swinging it to and fro, smoke rises in puffs and in abundance and the bees with a murmurring sorrowful sound leave their lively cavities bounded by nice walls of wax and stored with sweet "honey". Then the man pierces the hives and breaks them into pieces with the stick in such a way that the pieces thus obtained fall into the net attached to the stick. When the net is full of these pieces he sends it up and repeats the operation one after another till all of them are finished. There should be much of smoke when the operation is going on, otherwise the bees may come back and they are sure to attack any man and take his life out of him. When

the work is over the man hanging in the ravine will be lifted up and all of them get down with their booty. All assemble in a place still under the cover of smoke and extract honey and fill it in pots and tins by pressing strongly the cakes between their hands. The refuse that is left behind honey is known as crude wax. This is refined by melting the pieces in boiling water and then filtering.

As already observed all the products that are available in this District are collected by the hill tribes chenchus. They bring them to the Depôts and the officer in charge of the gudem takes them weighed or measured according to the nature of the produce and pays them back in grains according to the collection charges fixed in the schedule of rates. By this arrangement ot supplying the Chenchoos with grains and other articles they require, in their gudems, the chance of their going to the villages is stopped and their temptation to stealing and committing offences of criminal nature is prevented. By the strict supervision and proper control of the officer in charge of the gudems, almost all the gudems are brought under control and number of crimes also have decreased and the villagers express their heartfelt thanks to the Forest Department for the great relief given to them.

The produce collected is disposed of every year by giving contract to some merchants or other in an auction. To do this the District Forest Officer holds an auction, every year, for all the Minor Forest Products of the District after publishing the date and hour of such auction in the District Gazette. Every bidder is to deposit some fixed amount in the Treasury. The highest bidder will be proclaimed the contractor of the District and he alone, has the right to purchase the Minor Forest Produces collected by the Department. Every month the Range Officer sends a notice to the contractar stating what all produces are in his Range ready for disposal. On receipt of this, the con-

tractor remits amount according to the sale prices of the produces. Then he produces the Treasury chalan to the Range Officer, who issues orders to the Deputy Ranger or Forester to hand over the produces to him. Another contractor is also appointed for tanning Stuffs. He purchases all the barks collected by the Department. Now, the bark and leaves of Anogeiossus latifolia are not sold to these contractors, but are directly sent by the Department to the Superintindent of Tanning Stuffs, Madras. This way all the produces collected in this District are disposed of every year and a large income is realised. A few years back the Government itself was selling produces in their own Depôts. Only those products that were in demand were easily disposed of, and the rest were left unsold or they had to be auctioned at low prices; the produces were lying in the Depôts more than a year and as a consequence there was dificit in the produces. After the introduction of this system of giving contract, all the produces that are collected are disposed of every year and a good revenue is realized by the Government.

The chief dis-advantages in this operation of collection are the chances of occurrence of fire and of the diminution of the regeneration of the species which yield the produce. The breaking out of fire in the forests is caused by the carelessness on the part of the chenchoos while extracting honey, but it is very well guarded. Regarding the less regeneration of the yielding crops a remedy should be sought for at once or else it may be felt very keenly as time passes on. By the constant removal of seeds of soap nuts, kanuga seeds and Mustee seeds no chance is left for new seedlings to come up, the existing crop diminishes, and these species may in the long run be exterminated altogether. This is why there is but a limited number of these species scattered here and there in these areas. Hence to improve the regeneration of these species artificial sowings should be carried out as early as possible.

In conclusion, I may be permitted to say that as this article is only a maiden attempt of mine, I request that it may be given a patient reading.

A. Rama Rao,
Junior Division.

It is just such maiden attempts to present facts and observations from the Ranger's point of view that we welcome. Editor.

A Study of Xylia dolabriformis.

Occurrence.

In the Bhagavathiculam and Yezhattumugom Felling Series of the Malayattur Reserve of North Travancore, we have a fine legacy of Xylia dolabriformis, occurring in large patches, and looking, as it were, a natural Plantation. It occurs as a pure crop in some places, while in others it is interspersed with Lagerstroemia lanceolata, Terminalia paniculata, Strychnos nuxvomica and some others. It may now be pertinent to enquire how it has attained this preponderance in the composition of the growing stock. This takes us on to a study of the œcological condition of the locality.

Soil & light.

Xylia affords us a practical illustration of the correlationship between light and soil requirements for its natural regeneration. Adopting Mr. Coventry's classification of soil we find this species to be characteristic of non-humus soil *i. e.* soil exposed to the full glare of the sun. In this type of soil, the ground is bouldery and porous, and heat

also appears to provide a stimulus due to exposure of root-system caused by cracks in the soil. These factors coupled with shallowness of soil are responsible for making Xylia a surface rooted species, reproducing itself profusely by root suckers. When Xylia is felled, more root shoots are found than coppice shoots. This has stood the test of my observation. Lastly it seeds in some places late in the fire season, and seeds escape burning; dispersal of seeds is sometimes brought about by sudden bursting of the pods, and hence seeds are hurled some distance, and have more chances of germination under favourable circumstances. Thus in deciduous forests where we have a non-humus soil, we have a plant life, an illustration of a survival of the fittest.

Relation of fire protection to Xylia.

There is one school of thought which holds that fire stimulates production by root suckers owing to injury caused to roots. Actual observation, shows that this holds good of Xylia, as it is also corroborated by Mr. A. W. Lushington who has observed in Cochin, a prolific reproduction of xylia by root suckers. It is held by some that reproduction by root suckers is a case of 'sickening malady.' This requires careful experimental operations to prove it beyond doubt. Among others, Mr. Gamble holds that fire does not retard but encourages germination of certain seeds by destroying the thick outer covering of *pods. These are some of the causes for its large proportion in the growing stock. In South Travancore, it is not abundantly met with, and this may be due to poor rainfall as compared with North Travancore.

[* This is perhaps more true with *indehiscent* fruits with a thick covering, than with such fruits as Xylia, which though woody, usually dehisces after maturity allowing easy access of the seeds to the soil; further, the testa (seed coat) of Xylia seeds is by no means so thick and horny as to need the agency of fire for its disintegration. Editor.]

Mr. Coventry arrives at the conclusion that species adapted to regenerate on non-humus soil are also adapted to regenerate with full exposure to sun, and says that non-shade demanders belong to Leguminosae. How true it is of Xylia, which is also, a Leguminous species, though shade bearing.

Thus gregariousness of growth is characteristic of non-humus soil and in such cases, there always exists a correlation between their light and soil requirements for natural regeneration.

In Travancore, Xylia is rising in value and largely in demand for, house construction and bridge work as it lasts long. Demand from a foreign market is also growing keen.

Malayattur. L. A. Krishnayer,
1—10—1918. [M. R. H. 1915-17]
Ranger.

A brief note on the progress of the Athletic Club during 1917-18.

The *Annual Sports* were held on 29—9—1917 on the Police Recruits school grounds. Two new items — Sack-Scrimmage a very mirth exciting item, and servants' Race — were introduced this year. Competition was keen in all items. Junior Student C. B. Chengappa won the Richmond Championship cup with 21 marks. Athletic colours were awarded to Senior Student P. K. Parameswaran Pillai - 15 marks. Hockey was played from August to November & Foot-ball from December to June.

At *Hockey* 6 matches were played, one interdivisional and five against outsiders. Of the latter, 1 was won, 2 lost and 2 ended in a draw. The interdivisional match for the Cowley-Brown Cup, was won by the Junior Division who defeated the Senior Division by 3 goals to nil, after two draws. N. K. Timmaya was Captain of Hockey. Colours were awarded to Abdul Hameed Khan & C. B. Chengappah.

At *Foot-ball*, three matches were played – win 1, loss 1, & draw 1. At the Sadivayal Camp a six – a side tournament for prizes given by the Vice-President was held. Almost all took part. A. B. Fenn was Captain of Foot–Ball. Colours were awarded to students Seshagiri Rao, C. L. Narayana Rao, P. K. Paramaswaran Pillai and A. Baviah.

At *Cricket* 4 matches were played – all won, a very successful season. M. Narasinga Rao was captain of Cricket. In two of the matches, M. Narasinga Rao scored centuries, for the first of which he was awarded a Cricket bat. But a silver plate was awarded for the 2nd century Colours were awarded to A. Muthukrishnan, De Sylva, and Seshagiri Rao.

Tennis was started towards the close of the year. Two matches were played: (1) Messrs. Lushington and Fischer *versus,* Messrs. Abdul Qadir and W. C. Hart, in which the former won by 2 sets to nil., and (2) Messrs. Latham and Fischer, *versus* Students Sankara Alwa and Seshagiri Rao inwhich, the former won by 2 sets to nil.

Badminton. The courts being within Hostel premises, special facilities for this game are now afforded. Students played badminton both at Head-Quarters and in Camps. One match was played & lost.

The Pentland shield for the best all round Athlete of the year was won by Junior Student C. B. Chengappa; P. K. Paramaswaran Pillai was the runner up. The preparation of an Athletic ground, 3

tennis courts and two badminton courts was undertaken and completed during the year, on the College estate. Thus a great want has been met. This has contributed considerably to the general improvement in the Athletics of the College and also enhanced the interest among students in games.

The Marathon race took place on the 16th February at 7 A. M. over the usual course at the Sadivayal combined camp. Senior students Paramaswaran Pillai won the first prize. The other prize winners were C. B. Chengappah, M. Narasinga Rao, C. L. Narayana Rao and B. S. Chengappah in order. The interdivision competition in the marathon race was started for the first time this year — a 'marathon challenge cup' having been generously presented by Rissaldhar Major Bahadur Amir Mahomed Khan (late xx Deccan Horse). It was won by the Junior Division.

The year has been one of improvement in many directions in Athletics.

T. D. Ponniah,
Secretary,
M. F. C. Athletic Club.
9—9—1918.

Madras Forest College Athletic Sports 1918.

The 21st of September 1918 will be a memorable day in the annals of the Madras Forest Colege, as it marked the 1st time on which the Annual Athletic Sports of the College were held in our own

grounds recently made on the College Estate. The grounds and surroundings were, as far as possible, made to put on a festive appearance.

This year the 'Relay Race' and the 'Obstacle Race' were omitted and a new, and interesting event, viz, "Log cutting" — at the suggestion of Mr. C. B. Dawson Imperial Instructor — was added. The proceedings commenced at 3-40 P. M. The display was as good as ever and indeed in some events, such as 100 yards Flat Race, and Hurdle Race, it was 'magnificient' — to use the expression of the spectators. In these events, the College record for the past years was broken. In the 100 yards Flat Race, Junior Student Mulyal and Senior Student C. B. Chengappa finished dead level at first. They had to run again with the result that Junior Student Mulyal came first; this time by about two feet. The show in High Jump was excellent — Junior Student Mulyal taking it very easily and clearing a maximum height of 4′ 10″. The hurdles was won by Muliyal in 18-4/5″.

The College and students were at home to the ladies and gentlemen, and to students of selected institutions of Coimbatore; the Principal and staff entertained the European ladies and gentlemen.

A noteworthy affair of the year was that the first prizes in most of the events consisted of "Post Office Cash Certificates" of the value of Rs. 10-0-0 each fulfiling thus two objects at once viz helping the country in the execution of war and also awarding prizes to the winners. The prizes were given away by Mrs. C. D. A. MacCarthy wife of the Conservator of forests Western Circle. The Principal in a suitable speech thanked Mrs. Mac.Carthy and the audience and drew their attention to the fact how well fitted she was, to perform the function of giving away the prizes not only because she was the wife of one of the most senior Forest Officers in India but also because she was the mother

of a distinguished athlete her son in England being the captain of the Royal Military academy XI. Quite recently he has added laurels to his previous distinction by passing out as Senior under officer at Woolwhich and winning the sword of Honor, which in a way is akin to our Campbel Walker prize.

The Principal pointed out that this was the first Annual Athletic sports held on our own grounds, and that the success of the venture was in great measure due to the careful tests and experiments made by Mr. H. C. Bennett the late Vice President of the club.

He also referred in suitable terms to the indefatigable efforts of the present Vice President Mr. Abdul Karim in getting up the sports. The proceedings terminated with three cheers to Mrs. C. D. A. Mac Carthy.

The results of the various events are as follow:-

100 Yards flat Race.

1. Mulyal; winner's time 11 1/5 seconds (1917—11 2/5 secs.
2. C. B. Chengappa.
3. Monnappah.

Long Jump.

1. Pedalakshimiah; winner's jump 17′ 2″
2. Mulyal.
3. C. B. Chengappa.

Quarter mile Race.

1. Monnappa; winner's time 63 4/5 seconds.
2. C. B. Chengappa.
3. Pedalakshimiah.

High Jump.

1. Mulyal; winner's Jump 4′ 10″ (1917—4′ 9″)
2. Narayana Rao
3. Abdur Rahim Khan.

Half mile Race.

1. C. B. Chengappa; winner's time 2-m. 34$\frac{3}{4}$ sds.
2. C. L. Narayana Rao.
3. Monnappa.

Half mile invitation race.

1. Kesavelu L. M. High School; winner's time 2m. 29 3/5 sds
2. Radhakrishnan Coimbatore College.
3. Sodalamuthu Pillai Police Recruits school.

Slow Bycyle race.

1. Appa Rao.
2. Abdul Rahiman.
3. Edwards.

One mile flat race.

1. C. B. Chengappa; winner's time 6 m. 1 4/5 seconds.
2. Narayana Rao.
3. B. S. Chengappa.

Throwing the Cricket ball.

1. C. B. Chengappa; winner's throw 93 yards 2″
2. T. V. Thayman.
3. M. P. Subbiah.

Hurdle race. (120 yards).

1. Muliyal; winner's time 18 4/5 seconds (1917—20 3/5 sds.)
2. Abdur Rahim Khan.
3. Narayanasami Iyer.

Sack scrimmage.

Winning team:
1. Pedalakshimiah.
2. Abdul Hameed Khan.
3. Abdur Rahim Khan.
4. Narayanasamy Iyer
5. Ramasami Iyer.

A very mirth exciting event. The circle this year was larger than last year's—11′ radius, the effect being that the competition lasted longer and was more interesting.

Log Cutting.

1. Venkateswarelu.
2. B. S. Chengappa.
3. C. B. Chengappa.

The logs used were air-dry-babul ones of about 9″ diameter and had been obtained from the College Demonstration Forest.

Tng of war.

Senior Division Versus Junior Division.

For want of time we had to be satisfied with one instead of the usual three pulls.

Seniors won -- The winners had been coached by Mr. Crothers our First Provincial Instructor.

Servants' Race 200 yards.

1. Anthony - Peon of the M. F. C. Imperial Instructor.
2. Karunakaram.
3. Ponnappah.

It is to be noted that competition in this event was in a way unequal—lads having had to run with young men. This may be remedied next year by dividing the competitors into two batches, or by giving handicup to younger competitors.

Children's Race.

1. Thandy Goundan.
2. Krishnan.
3. Guruvan.
4. Sethammal.
5. Rajammal.
6. Marudachalam.
7. Thulasi.
8. Lakshimi.

Senior Student C. B. Chengappa won the Richmond Championship cup with 20 marks and Junior Student Mulyal [gained 'colours' with 17 marks.

It is to be regretted that no 'Past Students Race' was run this year for want of enough competitors -- only two past students Messrs. A. P. Sreenivasa Iyengar M. R. H. & T. T. Ansep M. R. H. having honoured us with their company, although the date of the Sports, unlike that in the past years, was moved back to the 3rd week of the month specially to suit the convenience of past students who, it was thought were hither to unable to attend, being busy with their monthly accounts and returns, when the sports day was at the end of the month-

T. D. Ponniah,
Secretary & Treasurer,
Athletic Club.

The Stanes Hockey Trophy Tournament.

On Saturday the 28th September at 4-30 p. m. we met in the first ties the Coimbatore United Eleven on the Recruit school ground, the umpires being Mr. Hamilton and Mr. Berry. The players at first seemed to take matters somewhat easily. But when we put a goal, the contest on both sides was marked and the play became very lively. Another goal was scored by us during the first half which was soon followed by one against us. About the end of the first half hour one of our best players, C. B. Chengappa was very unfortunately struck by the ball on his nose which resulted in profuse bleeding and he was at once taken to the Municipal Hospital. Our players were not discouraged by having to play with ten men against their opponents eleven, and a third goal was soon scored (C. L. Narayana Rao). The first goal was put in by B. S. Chengappa and tbe second goal by M. P. Subbiah, the ball being passed on to him by C. B. Chengappa right wing out.

The play thus ended in our victory by 3 goals to one. The centre Forward M. P. Subbiah acquitted himself very creditably and carried the ball against many opponents very gracefully. The Captain Abdul Hamid Khan is much to be congratulated upon our victory against such odds.

Coimbatore Tournament, Hockey Match.

Madras Forest College *Versus* Madras Agricultural College.

On 30—9—1918.

It is a pleasure and privelege to pen the events of this day. The opposing teams met punctually at 4-30 p. m. on the Police Recruits

grounds. The match from beginning to end was a splendid one. The teams being strong and well balanced, the excitement was kept up throughout. In the early part of the first half for-tune seemed to favour our opponents and they put in a goal though after much contest. This nerved our players with more vigour and soon a goal was scored by B. S. Chengappa. Then ensued a stronger contest. In the second half another goal was scored by M. B. Subbiah. The latter has proved himself a consistent scorer throughout the season.

The absence of one of our best men C. B. Chengappa was much felt. Thayuman full-back, M. P. Subbiah Centre forward and goal keeper Y. P. Lakshmayya merit special mention. Thus ended a fine hard Match resulting in a win for us by 2 goals to one.

FINALS.

Played on Recruits School Ground October 2nd between the Reserve Police and the College before a large and enthusiastic assembly. Result: the College was defeated by 1 goal to nil. On the day's play the best team won. The Police played much above and the College much below previous form in the Tournament. Early in the game the Police Scored by a long shot, and M. B. Subbayya (forward) was seriously injured: the latter continued in the game but had to join the full back line where he could be but little more than a passenger. This seriously disorganised the forwards combination and resulted in inaccu rate passing for the rest of the game. But for this misfortune and a few lesser injuries to other members of the team the College should have just pulled off the match. The game was a hard severe one played with keen-ness and fair-ness on both sides The refereeing was characterised by quick observation and prompt decision.

In asking Mrs. Stanes to present the medals and cup to the winner Mr. C. Wood, Principal of the Agricultural College drew attention to the happy appropriateness of the cup being presented by a conection of the Donor Mr. R. Stanes. The Trophy was given by Mr. Stanes 4 years ago to the Coimbatore Athletic Association and has been won twice by the Stanes High School (very properly as Mr. Wood observed) and once by the Agricultural College.

A Tribute was paid by Mr. Wood to the labours of those gentlemen who had organised this year's tournament and who had performed the functions of referees etc., and the proceedings terminated with cheers for those officials of the tournament and for the Donor of the cup.

We have probably a better Hockey Team than we have ever had before, but in the crucial test we failed to do ourselves justice partly from lack of condition (such an essential against a heavier team) and partly from nerves.

Results of Matches Played by the Madras Forest College during August & September '18

(I) HOCKEY.

Date.	Particulars.	Result.
8th Aug. 18	Madras Forest College *versus* Madras Agricultural College—on M. F. College grounds.	Lost by nil to four.
15th Aug. 18	Madras Forest College *versus* Stanes High School—on Stanes High School grounds.	Lost by one to three

Date.	Particulars	Result.
20th Aug. 18	Madras Forest College *versus* District Police Club—on Forest College grounds.	Draw nil to nil.
22nd Aug. 18	Madras Forest College *versus* Young Men's United—on M.F.C. grounds.	Won by four to nil.
3rd Sep. 18	Madras Forest College *versus* the Central Police Recruits' school on Recruits' school grounds.	Won by twelve goals to nil.
10th Sep. 18	Madras Forest College *versus* District Police Club—on Coronation Park grounds.	Won by five to four
26th Sep. 18	Madras Forest College *versus* Madras Agricultural College—on M. A. C. grounds.	Won by four to two

Coimbatore Hockey Tournament.

28th Sep. 18	Madras Forest College *versus* the Young Men's United — on Recruits' school grounds.	Won by four to one.
30th Sep. 18	Madras Forest College *versus* Agricultural College—on Recruits' school grounds.	Won by two to one.
31st Sep. 18	Madras Forest College *versus* District Police.	Lost by nil to one.

Date.	Particulars.	Result.
	(II) TENNIS.	
6th Sep. 18	Madras Forest College *versus* Madras Agricultural College, Three teams, —on Agricultural College grounds.	Team 1 lost by one to two ,,2 do nil to three ,,3 do nil to three
	CRICKET.	
1—9—18	Madras Forest College *versus* Madras Agricultural College.	Won by M. F. C. by 63 to 41 runs.
8—9—18	Do.	Won by M. F. C. by 122 to 79 runs.

T. D. Ponniah.

Rambling thoughts.

The following vagrant ideas were suggested by a perusal of the issues of the Magazine for March and June 1918. In both there are interesting articles on fire lines generally and one on fires in the Nallamalais in particular. The latter is a really valuable contribution from a Ranger, the man who has to carry out the work, and just the kind of article that one of the other contributors — R. D. R. — has called for.

The writer "touches the spot" when he recommends that the chief causes of fires should be ascertained. It is obviously of little use

taking measures against one source of fire if the majority *in that locality* are started in a totally different manner, requiring a quite different method of defence.

This brings me to another quite excellent contribution — the one entitled, "Hill tribes and how to deal with them".

The author gives many wise hints regarding behaviour to be adopted towards hill men so as to gain their willing co-operation. Now this applies not only to hill tribes but to all with whom a Ranger comes in contact. A careful consideration of the causes of fires in the forest will soon convince an impartial enquirer that practically every fire (in South India at least) is directly caused by man, either intentionally, carelessly or accidentally.

It is quite certain, therefore, that unless Forest Officers secure the co-operation of the people all other measures for fire protection will be inoperative in the long run. How easy it is for a malicious villager to sneak into your nicely fire traced block, set fire in two or three places and be miles away before there is any sign of fire. Several methods are adopted by such people. One is by means of a ball of dry cotton or similar material that will smoulder. Live charcoal is placed inside and the ball is deposited in a nest of inflammable grass. Another way is by the use of a fuse lit at one end, the other being disposed so as to set the grass on fire when the fuse is burnt through; whichever method is practiced a considerable time lapses before the actual forest fire is started, allowing the perpetrator ample time to cover a long distance and prepare the inevitable alibi ~~an~~ the remote chance of his being suspected.

Therefore, fire lines may be amply wide; they may be perfectly designed and equally perfectly executed, but they will only avail

to keep the fire *within* the protected area if the people really *want* to burn the forest. People may perhaps be coerced, but prevention is better than cure. All precautions are of little avail if the co-operation of the people is not secured. Therefore, conciliate the people, at the same time make them responsible *i.e.* let a village be responsible for a definit area. Much, however, depends upon the Ranger and his ability to "move well with the people" by fair dealing.

* * * * *

One factor that very often stultifies the best efforts of the Indian Forest Department in the protection and improvement of the forest property of the state, is the very great ignorance of the people at large on most subjects connected with the forests. They have deep-rooted prejudices and beliefs of hoary antiquity and it is exceedingly difficult to persuade them out of these firmly held misconceptions.

The writer well remembers trying to convince some jungle men that the constant firing of the hills around their settlements was bound to be prejudicial to their cultivation and affect their water supplies. They laughed & retorted that it was since reservation that their water had fallen short.

The general conception is that the forests have always been there and have always been in the same condition, and the ignorant naturally tend to resent what they consider as unnecessary and vexatious interference with immemorial rights. It should be, therefore, one of the Range Officer's chief duties to endeavour to dispel this ignorance as far as his opportunities will allow. It will probably be found impossible to move the old and even the elderly, but let the Ranger tackle the young. I should like to hear of frequent visits by Rangers to village schools, giving short addresses of a few minutes, duration to the scholars. No

doubt both teacher and students would look upon it as a pleasant interlude. Let him try and speak in an interesting and yet simple manner on the value of the forests to the country, their effects in regard to climate, water storage and improvement of soil and the like. Such a practice is bound to have useful result if persisted in.

It would also be of value if some capable officers were to draw out brief summaries of the utility, aims and objects of the forestry in the several vernaculars of the Presidency for wide distribution, especially in schools. This would have to be deferred, however, till the end of the war.

It must not be thought that ignorance on forest subjects is confined to the uneducated classes. A great lack of knowledge is exhibited even by those who may append B. A. & B. L. after their names and a little propoganda even among members of the legislature would not be a waste of time. I would like to mention here that I heard recently of a well educated Indian Gentleman, who had occupied official posts of great responsibility, who declared his belief that goats, far from being detrimental to forests on the contrary, are beneficial. As this gentleman is the owner of a garden and an orchard, a Ranger who heard him asked why he did not introduce a herd of goats into his property, received the indignant reply, " my trees and plants are valuable ".

*   *   *   *   *

Another article of merit is that on page 115 (March issue) on forest offences. There is no doubt a more careful preparation of cases is needed in most ranges. Important points that should be noted are the precise locality and time of detection. Detecting officers should be encouraged to *write down* all emergent facts of the case as soon as

possible after detection if possible with the collaboration of the other witnesses. There is no intention whatever in this to suggest collusion to secure false evidence, but this procedure is likely to impress correct details on the memory and avoid conflicting evidence, which may be seized upon as an excuse for acquittal by a magistrate not fully alive to the interests of Government in such matters. It is a common experience that witnesses differ in their remembrance of the details of an occurrence after several weeks have elapsed.

For similar reasons it is advisable that there should be no unnecessary delay in any of the steps in dealing with forest offences. There is seldom any good reason why ordinary forest cases should not be finally and absolutely disposed of within two months of the date of detection, even when there has been an offer to compound which bas been refused.

Another point worth attention is the estimation not only of the value of the produce seized but of the damage caused to the forest. An offender may be found removing a bundle of fuel or half a dozen sugarcane props worth a few annas, while he has caused damage to the value of as many rupees in obtaining them. If the case goes to court, as the Magistrate is unaware of any compounding fee fixed by the D F. O. and has only the value of the property actualy seized as a guide, it is likely that the punishment inflicted will be inadequate. For the same reason the occurance report should state invariably in grazing cases whether the area grazed in is open or closed to grazing by the particular description of animal in question. An estimate of damage done by grazing is usually a difficult problem, but if it is possible, as in a growing Coppice coupe, or a nursery or a young plantation, it should be made and noted.

* * *

On page 154 (March issue) quinine is recommended as a remedy

for wasp and scorpion stings, but, as the part affected is first to be incised with a sharp implement and the quinine then rubbed in, it seems probable that the remedy is as little desirable as the original injury. Salvolatile (or any form of ammonia) and also vinegar are good remedies and need only be rubbed on to the wound without any painful operation.

* * *

The note on page 214 (June issue) regarding the weight of the fuel loads carried by women in Vizagapatam recalls a curious tragedy that overtook one such woman a few years ago.

These loads are made up in long bundles 8 feet or so long. On one occasion a string of women so laden was moving rapidly homewards; one of its members turned her head so as to bring her bundle at an angle to the line of march; The next behind rammed the displaced bundle with her own. The impact, acting on the great weight, with the leverage gained by striking the end of the bundle, was sufficient to dislocate the bearer's neck and cause her death.

* * *

On page 216 (June issue) it is stated "The African elephant has probably never been tamed". This is not correct. It is true that the African species is far less tractable and less easily tamed and trained than his Indian cousin, but several individuals have actually been trained. I believe that the famous *Jumbo* was an African elephant. I well remember an illustration in a book on natural history (though I cannot just now recall its title) showing side by side an African and an Indian Elephant each with a mahout on his neck. The reproduction was from a photograph and there could be no doubt of its authenticity.

In this connection, the following extract from a book entitled. "From the niger to the Nile" is interesting. The book was written by Lt. Boyd Alexander, the sole survivor of the 3 original participants (one

his own brother) of the Alexander Gosling expedition in 1905—6 that went, mainly by water, up the Niger, across lake Chad and down the Nile.

The passage runs: "For some years past the Belgians have been training young elephants, which are caught in the bush by native hunters, for transport work in the Congo; but as an Elephant connot carry his full load till he is 7 years old the business is a slow one......at the time of our arrival at Bambili in April 1906 the number amounted to 28.

The method of capturing them is to shoot the old male (in a herd) and then as the cow goes off with her young, a native jumps on the back of a baby elephant, separating it from the cow and driving it off into the bush."

It seems very probable that the age (7) at which it is stated that an African elephant carries a full load is a slip for seventeen. An Indian Elephant could certainly not carry a full load at a lover age than 18 without serious danger of permanent injury; it does not seem possible that a still larger beast should devolope so much quicker.

* * *

On the same page as the last note is another entitled: "Evidence of intelligence in plants." This is a very misleading title and there seems no evidence given in the note of intelligence but only of a remarkably doveloped response to chemical attaction (*chemotropism*). There would be as good grounds for claiming "intelligence" for the young shoots of climbing plants that seem to seek for a support. The young shoots describe a complete circle, the radius of which is determined by the length of the shoot (*movements of nutation*). But we know that this movement is entirely mechanical and antomatic, and taking place whether there is a possible support within reach or not, and not in any particular direction or towards any particular object.

Such terms as intelligence should be used with caution; misused they are apt to mislead.

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The following extract, taken from a report made by Dr. H. Cleghorn, Conservator of forests of the Presidency, under date of 1st May 1858, is interesting from two points of view. Firstly, as showing how early the expansion of the sandal bearing area received attention; and, secondly, as regards methods of suppressing forest crime. It is not in all, or even many, localities that conditions lend themselves to the use of mounted patrols for the purpose.

It is conceivable, however, that platoons of the I. D. F. might be worse employed than in the suppression of forest offences.

"**Sandalwood**. This tree has received much attention in Canara, Coimbatore, Salem and a little in North Arcot. It would appear that its spontaneous growth has increased to a considerable extent; and it seems certain that, with the vigilant supervision of local officers and slight assistance to nature in clearing the heads of young plants, which are often matted down by strong creepers, an addition might accrue to the revenue of these provinces.

From information received from the late assistant Surgeon Drew, I was enabled to communicate to the commissioner of Mysore the existence of large band smugglers in an unfrequented path near the Carkur Pass, who were captured by the Mysore Horse to the number of 78, with the sandalwood tied on their backs."

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I cannot close these wandering remarks without heartily congratulating the management of the Magazine on the excellent reproduction of a view of the College and Museum that forms the frontispiece to the September issue.

C. E. C. F.
25—9—1918.

[We welcome these notes and criticisms. Some of them will form suitable matters for discussion at the durbars and Ryot's meetings that are held during the College *tours* eg. Komattyeri & Walliar.

EDITOR.]

Extract from 'NATURE'

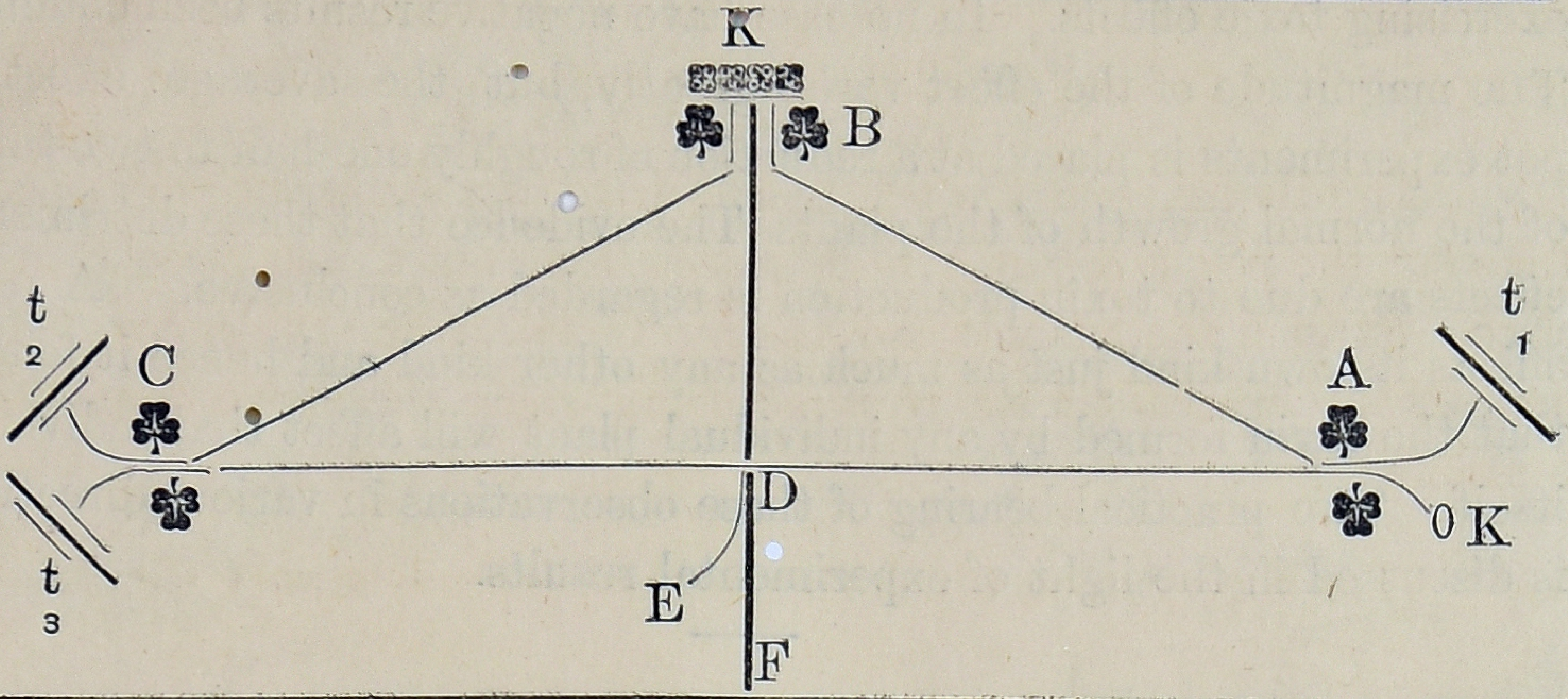
"Toxin production in the soil by growing plants."

In the 'Annals of Botany' (Vol. XXXI No. C XXII.) Dr. Spencer Pickering gives a summary of his investigations of the effect of one plant on another growing near it. These experiments originated in 1895 in his wellknown observations on the effect of grass on fruit trees. Proceeding from this complex case to the simplest conditions, conclusive evidence of toxin production in the soil by the growing plant has now been obtained. The deleterious effect of one growing plant on another appears to be a general phenomenon. By means chiefly of pot experiments the following plants have been found susceptible to such influence: Apples, pears, plums, cherries, six kinds of forest trees, tobacco, tomatoes, and two varieties of grasses; while apple seedlings tobacco, tomatoes and 16 varieties of grasses have been found capable of

exercising toxic effects. In no case have negative results been obtained. The magnitude of the effect varies greatly, but the average effect in pot experiments is placed at a reduction of roughly one-half to two-thirds of the normal growth of the plants. The evidence that these detrimental effects are due to toxin production is regarded as conclusive. A plant affects its own kind just as much as any other kind and hence it follows that the toxin formed by any individual plant will affect that individual itself. The practical bearing of these observations in various directions is discussed in the light of experimental results.

The triangle method of laying a curve.

This method is based mainly on the formula $\frac{C^2}{2R} = P$ in which C=chord, R=radius and P= perpendicular from one end of the chord to the tangent at the other end. By using this formula an isosceles triangle can be constructed (in which each of the equal sides is equal to the chord and the prependicular from the vertex to the base is equal to $\frac{C^2}{2R}$) by means of an instrument which has been devised by me, consisting of 3 deal wood pegs having narrow holes near the top through which some pieces of strong twine have been passed as shown in the figure below exaggerated for the purpose of illustration.



A, B, C pegs. AB=BC=chord. t_1 & t_2 chord reals. t_3 base real. BD=P or $\frac{C^2}{2R}$. E=a piece of fine thread tied to the twine BF at D, so that BD=P. K=knots to prevent slipping through the holes in the pegs A and B.

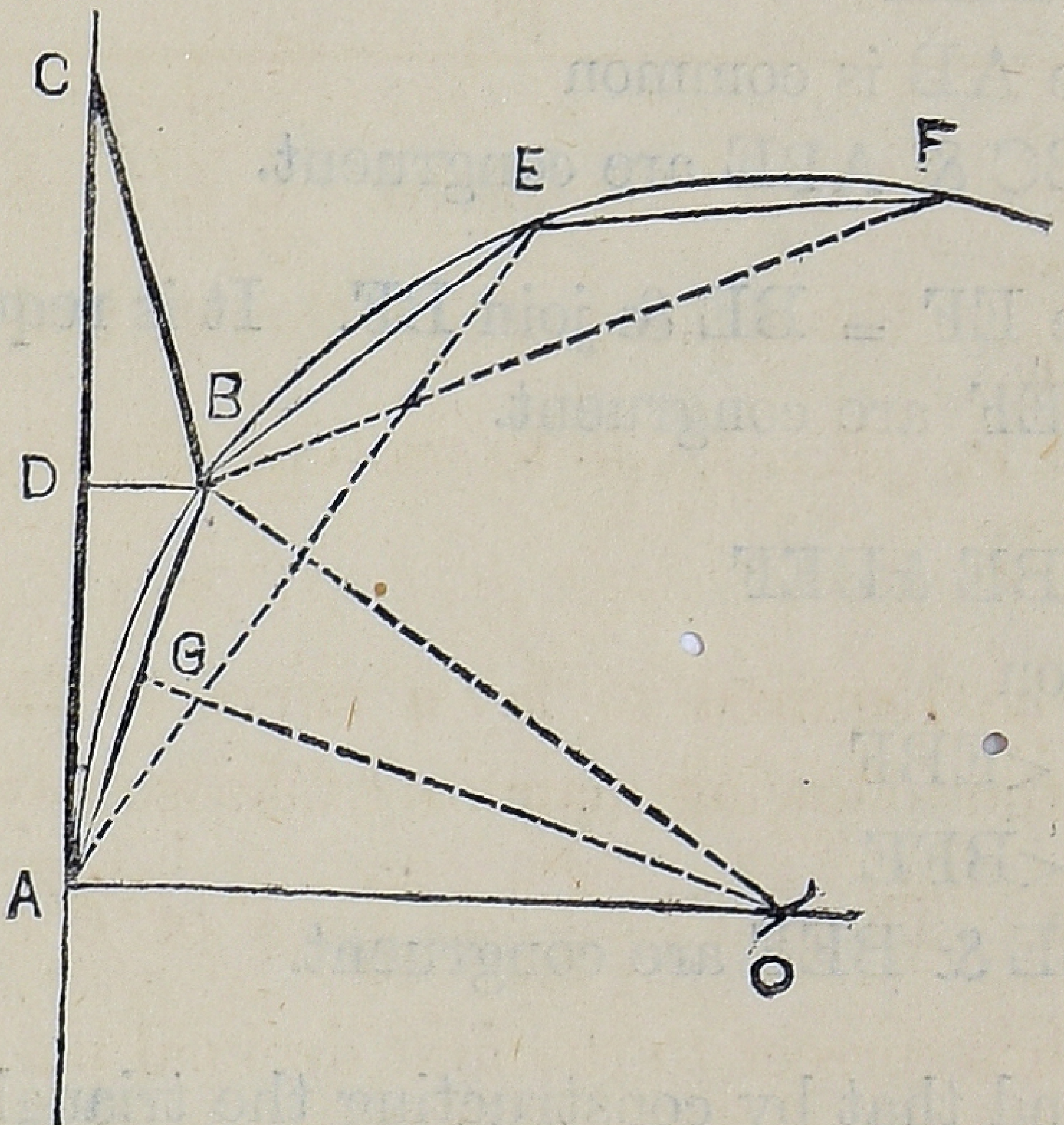
Now let it be required to lay a curve of 25′ radius. First set the instrument in the following manner. Choose any convenient length of chord, say 5 feet. Then, $P=\frac{C^2}{2R}=\frac{25}{50}=\frac{1}{2}'$ or 6″.0. Find the value of P always in inches correct to the first decimal place. Fix the peg A or a level piece of ground and mark AB=5′= BC by winding or unwinding t_1 and t_2. Fix the peg B on the ground and make AD=6″.0. Adjust the base string AC by moving C and by winding or unwinding the real t_3 so that D touches but not cuts the base string. Now fix the peg C. If the setting is accurately done AD must be equal to DC.

Secondly place the the peg A at the starting point of the curve and the peg C along the tangential direction. Stretch the triangle and the peg B will be on the curve. Take out the peg C only and stretch

the triangle so that the peg C is now on the opposite side of AB. The new position of the peg C will be on the curve.

Thirdly take out the peg A and drive in a strong peg in its place. Take out the peg B & put A in its place. Take out C and place B in its place. Stretch the triangle and the peg C will be on the curve. Continue this operation till the required point where the curve should end is reached.

[The theory upon which this method depends is very simple.



(i) Let A B E F be the curve, O its centre, AB the chord, AC tangent at A and B D ⊥ to AC. It is required to prove that $BD = \frac{AB^2}{2AO}$. Draw O G ⊥ to AB and join O.A.

In the $\triangle^s$ OAG and ABD

$\because \angle AOG = \angle BAD$ and $\angle OGA = ADB$

$\therefore$ the $\triangle^s$ OAG & ABD are similar, so that $\frac{OA}{AG} = \frac{AB}{BD}$

That is $\frac{OA}{\frac{1}{2}AB}=\frac{AB}{BD}$

$\therefore BD=\frac{AB^2}{2OA}$

(ii) Now, make BC=AB= & BE=AB. Join AE. It is required to prove that the $\triangle^s$ ABC & ABE are congruent.

In the $\triangle^s$ ABC & ABE

$\because$ <BAC = <BAE

<BCA = BEA

& the side AB is common

$\therefore$ the $\triangle^s$ABC & ABE are congruent.

(iii) Make EF = BE & join BF. It is required to prove that the $\triangle^s$ ABE & BEF are congruent.

In the $\triangle^s$ ABE &BEF

$\because$ B E is common

& <BAE = <EBF

& <AEB – <BFE

$\therefore$ The $\triangle^s$ ABE & BEF are congruent.

Thus we find that by constructing the triangle ABC and moving it as explained above, we can get several points on the curve.

The middle string BF may be dispensed with by finding out the length of the string AC in terms of the chord and the radius in the following manner.

We have already proved that $BD=\frac{AB^2}{2AO}$.

$AC = AD = 2\sqrt{AB^2 - BD^2}$

$$2\sqrt{AB^2 - \left(\frac{AB^2}{2AO}\right)^2}$$

$$2\sqrt{\frac{4AO^2\ AB^2 - AB^4}{4AO^2}}$$

$$= \frac{2}{2AO}\sqrt{AB^2\ (4AO^2 - AB^2)}$$

$$= \frac{AB}{AO}\sqrt{(2AO+AB)\ (2AO-AB)}$$

$$= \frac{\text{chord}}{\text{radius}}\sqrt{(2\text{ radius} + \text{chord})\ (2\text{ radius} - \text{chord})}$$

$$= \frac{C}{R}\sqrt{(2R+C)\ (2R-C)}$$

A. SESHAGIRI RAO.

Occasional Notes.

We congratulate C. B. Chengappa on winning the open 100 yards, quarter, and one mile races (the only events in which the College was eligible to compete) at the Grigg Memorial Sports on August 31st; also K. G. Monnappa 3rd in 100 yards and 2nd in quarter mile, and C. L. Narayana Rao–3rd in 1 mile race.

We also congratulate Junior student K. G. Monnappa on taking 7 wickets for 12 runs against the Agricultural College on September 1st.

*　　*　　*

C. H. Ashe (1914—16 division, M. R. H. Hockey and foot-ball colours in 1914) who was given a commission in the I. A. R. O. as second Lieutenant is now a Lieutenant in the Labour corps at Quetta. We wish him every success.

*　　*　　*

The following students have been awarded Colours :—

1. **Hockey.**
    - Abdul Hamed Khan.
    - C. B. Chengappa.
    - B. S. Chengappa.
    - K. Appayya.
    - T. V. Thayuman
    - Y. Peddalaksmia Naidu.
    - M. P. Subbiah.
    - C. L. Narayana Rao.

2. **Cricket.**
    - A. Seshagiri Rao.
    - ~~E. De Sylva.~~
    - P. V. Krishna Rao Naidu.

3. **Tennis.**
    - A. Seshagiri Rao.

4. **Athletics.**
    - C. B. Chengappa (for the second time), and
    - J. A. Mulyal.

* * *

Arrangement are now being made to obtain green Blazers with (for 'colours' men) the regulation pockets and binding.

* * *

The Board of Visitors has accepted the generous offer of Mr. Fischer I. F. S. late principal of the College to present a challenge cup for gymnastics, open to the whole college. The Cup was won last June by A. B. Fenn.

* * *

The Tennis courts have been completed. The Courts although they are still very rough have already proved very popular.

* * *

Mr. R. D. Richmond won the Hunt Cup at the Ootacamund Hunt Races in September. Mr. S. Cox I. F. S won this Cup in 1914.

* * *

The following forest officers have recently visited the College :—

Messrs. R. M. Williams on (conservator)
R. D. Richmond (Dy. conservator)
C. C. Wilson (Dy. conservator, on leave from Mesopotamia)
R. W. Inder (Dy. conservator.)

* * *

We congratulate S. Cox Esq. I. F. S. on being made a Member of the Order of the British Empire.

* * *

A very attractive model of a sledge way and turn-table with a loaded sledge has been made at Dehra Dun for the Gass Museum.

* * *

The 'Engineering Park' of the Madras Forest College is being considerably extended and will include a model sledge road in two sections with turn-table, sleeper sledge Derrick, and shears : eventually a wire rope shoot will run from the College roof to a tramway traversing the park. A water shoot will also be constructed near the cistern.

* * *

The following students of the Junior division have been appointed members of the House Committee :—

1. Mulyal
2. Appayya
3. K. P. Chathu Nair
4. T. M. Doraisamy Pillai.

* * *

During 1917—18 about 12,800 persons (excluding M. F. C.

students) visited the museum as against 10,600 in 1916—17 and 5,000 in 1915--16.

*   *   *

The following additions have been made to the General Library:-

1. 'Report on the Extension of Cinchona cultivation, in India, by Lt. Col. A. T. Graze I. M. S.'

2. 'Catalogue of the Wood specimens exhibited in the Economic section of the Madras Museum'.

3. 'Forest grazing, and the Nellore kancha system'—a paper read by C. E. C. Fischer Esq. I. F. S. at the Indian Science Congress held at Lahore, last January.

4. 'The Madras Engineering College calendar' for 1918—19.—Received from the Principal of that College.

5. 'The life of the Plants' by F & L Duncan.—purchased.

6. A note on some European Sylvicultural systems by R. S. Troup I. F. S.

The following additions have been made to the Students' Library :-

1. "Madras Occasional Verse" } obtained by purchase.

2. "Journal of the Marquis of Hastings"
3. "Drift wood spars by P. C. Wren."
4. "Plato's Republic"
5. "The Mighty Mahseer"
6. "Indian Snakes' by Nicholson.

} presented by F. Cowley-Brown

7. Several copies of a note on some European Sylvicultural systems

by R. S. Troup I. F. S.—this book will be found of great assistance to Senior Students struggling with the uniform Method.

* * *

Forest fires have been observed on the hills North west of the College at the end of september; we wonder whether any of our readers have knowledge of the occurrence of forest fires at later date than this in any previous year.

* * *

Students' gardens have been started at the hostels.

* * *

The provision and fuel stores opened near the West Havildar's lodge has proved very successful; the turn-over is already about Rs. 1500/ per month. The prices are controlled by the principal in consultation with the House Tutor and the House Committee. Standard weights and measures are being furnished to the Provision contractor: no other may be used.

* * *

Cattle are now prohibited on the Forest College estate to the marked welfare of the plants and at the same time to the advantage of the Students' health and comfort as milk etc. is no longer supplied by the College servants, but comes from the Agricultural College dairy direct.

* * *

A temporary reading room has been arranged for in the hostels.

* * *

It has been decided by the Board of visitors that in future a garden party or similar social function shall be held in connection with

the Prize day. Arrangements will be made to enable past students, to be present.

* * *

It is proposed to convert at an early date the 25 acres immediately surrounding the main College building and Museum into an ornamental park.

* * *

During Head quarter terms each division now puts in from 5 to 6 hours work per week field work in the Demonstration Forest or Engineering park.

* * *

The joint dispensary was opened in July, the College Sub Assistant surgeon being transferred to its charge and placed under the D. M. S. O.

* * *

In response to a special appeal every student of the Madras Forest College with the exception of one junior who holds a bond in the 1917 loan has invested Rs. 50/- or 100/- in one War loan. The College is to be congratulated on its realisation of the duties of citizenship.

* * *

Students are recommended to study books on Athletics to be found in the students'. library—eg:

Muscle building
How to Sprint
Running & Cross country running

Hockey
Foot-ball etc. etc.

* * * * *

BIRTH

Ashe—On the 18th November, 1918, at Baraca, Kilpauk, to Lieut, & Mrs. C. H. Ashe, a daughter.

* * * * *

We regret to have to record the death of V. J. Ramalingam M. R. H. [1915—1917] on the 21st October 1918. He obtained the M. R. H. certificate and bore an excellent name at the College.

———o———

Miscellanea.

The attention of students is invited to "Varieties of Viceregal life" by Sir W. Denison, which has been presented to the Students' Library.

The author remarks with regard to the Eucalyptus in Tasmania: "The trees that *I saw* measured were from 200 to 300 years old, judging from the annual rings, and the timber of the Blue gum is as good as can be found in the world, I believe, when properly seasoned".

It is probable that the poor reputation of Eucalyptus timber in India is due to its being grown in dense stocking, resulting in an abnormal height increment for 70 years, with the result that the cell tissue is unduly elongated and consequently thin-walled. Hence the Indian-grown Eucalyptus timber fails in durability and strength.

The experiments that the Nilgiri District Forest Officer is now undertaking will be of great interest eventually. The object is to

ascertain whether timber cut from the Eucalyptus Globulus in Brooklands, where the stocking is very open and the trees have consequently a great girth but a low height, will after careful seasoning respond to severe tests for transverse and shearing strength.

* * *

The total import of matches into India for the year ending 31—3—1917 was valued at Rs. 115,69,771 or Rs. 31,700 per diem.

* * *

A most informative article on Soil aeration appears in the 'Indian Forester' for May 1918.

The folly of watering without soil aeration in nurseries is clearly demonstrated—also the probability of aeration being the real antidote to toxicity.

* * *

The percentage of moisture in 'air-dry' timber varies as the climate. In Europe and North America 'air-dry' timber contains 15—30 % moisture; in dry parts of India in the hot weather, 8-15 %; in Burma, and the West coast of India 18—25 %; in Dehra under 15%.

* * *

WATCH AS A COMPASS.

Do you know that your watch is a compass, or at any rate, as good as one, if you only knew how to use it? If you do not, learn now. You want to find the North.

Well, point the hour hand to the Sun, and the South is exactly half-way between the hour hand and the figure XII on the dial.

For instance, suppose it is four O'clock. Point the hand indicating that hour to the Sun, and half way between it and the figure XII is figure II. That will be opposite the South.

Just the same if it is eight O'clock, the figure X is the South. Look to the North and your right hand is the east, your left hand the West. Very simple, is it not? But like the simple things, how many know it?

"Madras Times"

* * *

Calcium Carbonate heated, becomes Calcicum Oxide—quick lime. Calcium Oxide subjected to water becomes Calcium hydroxide—slaked lime, in the form of a fine powder.

Slaked lime if exposed on soil gradually returns to the form of Calcium Carbonate.

Slaked lime is a more suitable form of Manure than Calcium Carbonate.

* * *

1. Cubic foot of Water weights 1000 oz.

	$= 6\frac{1}{4}$ gallons
	$= 62\frac{1}{2}$ lbs.
1 ton	$=$ 224 gallons
1 gallon	$=$ 10 lbs.
	$= \frac{4}{25}$ Cubic foot.
1″ rain per acre	$=$ 22,400 gallons
	$=$ 100 tons.

∴ 1″ rain on the College athletic ground ... ... = 22400 × 5 or 5½!
112,000 gallons.

∴ ¼″ = 28000 gals.
= 125 tons.

C The College cistern holds 7200 gals.
= ~~325~~ tons. 32·1

1. Kerosine oil tin holds 4 gals.

1 tin Kerosine oil should raise 10′ water from well to Cistern where it *would* form 5′ depth (total height of cistern = 4′)

* * *

All places on the same Parallel of latitude have the same length of day & night at the same time of the year, *i. e.*, same altitude of the Sun.

∴ If we take altitude of the Sun at 12 hrs. we can fix latitude ~~for~~ from the almanack.

All places on the same meridian of longitude have noon (or Sun attains its zenith) at the same moment.

∴ If we note actual time of the Sun's zenith we can by comparing this hour with Greenwich time, fix longitude East or West of Greenwich.

It takes 4′ for each degree of longitude to roll from East to West.

* * *

It is said that in 1917 the Ford Company was turning out 750,000 cars per annum; i. e., $1\frac{1}{2}$ cars per minute night and day, throughout the year.

* * *

On page 152 of Vol. II No. 3 of the Magazine the quantity of fuel required for the production of sandal oil is inaccurately stated. The correct figures (since pointed out by Rao Sahib K. R. Venkatramanier Avl. E. D. C.) are :—

7 tons of wood fuel distil 100 lbs oil (value Rs. 3700) from one ton Sandal wood (value Rs. 1700.)

* * *

We understand that a project to form a forest park at Komattiyeri on the Javadi hills is under consideration with the objective of providing both a recreation ground for the Malayalis and an experimental area for technical purposes. We would suggest that the opportunity be taken to combine this excellent proposal with that of acquiring a site for the College camp and that the whole area be known as the 'Lushington Park'. No officer has done more than Mr. P. M. Lushington to open up the Javadis, to ameliorate the condition of the Malayalis and to encourage the development of Sandal research on those hills. Now that Mr. Lushington has retired from the Service it would be but fitting to take this opportunity of commemorating his valuable work in the locality.

——o——

List of contributions to the Gass Forest Museum.

Serial No.	Contribution.	Contributor.
1	Leaves and fruits of : (a) Pœciloneuron indicum. (b) Calophyllum elatum.	M. R. Ry. J. Sadasiva Ayyar Avl.

Serial No.	Contribution.	Contibutor.
2	A wild dog skin with head mounted—on loan.	C. C. Wilson Esq, I. F. S.
3	An instance of protective Mimicry.	Mr. R. B. Salisbury.
4	A Model of a timber slide with sledge and turn-table.	R. S. Pearson Esq. I. F. S. Imperial Forest Economist. Dehra.
5	A Model of a brake for timber slide.	do.
6	A photograph of the 'Madras Forest Research Establishment 1917.'	Mr. R. Jaganadham.
7	Six photographs of plantations.	C. E. C. Fischer Esq, I. F. S.
8	Loranthus on Eucalyptus.	C. N. Narasimha Achari Student 1917—19 division.
9	One Elephant foot (on loan).	C. E. C. Fischer Esq, I. F. S.
10	A Specimen showing abnormal germination of two Sandal seedlings from one seed.	Rao Sahib K. R. Venkataramanier Avl.
11	3 Photographs of Models and 8 diagrams of Sylvicultural methods.	E. Marsden Esq I.F.S. Imperial Sylviculturist Dehra.
12	4 Photographs taken at the recent opening Ceremony of "The Gillman road"	M. R. Ry. K. A. Chengappah Avl.
13	6 Sample barks.	Mr. S. Chidambaram R. O. Chingleput.

Serial No.	Contribution.	Contibutor.
14	6 long panels.	Mr. K. Venkatramanan R. O. Satyamangalam.
15	A section of a bore at komattiyeri.	F. L. C Cowley—Brown Esq, I. F. S.
16	A stick insect.	C. N. Narasimhachari Student M. F. C. (1917—19.)

The Inter-divisional Hockey Match for the 'Cowley-Brown cup.'

On 8th November 1918, this match was played on the College Ground with Mr. Crothers as the umpire. The Match was very exciting from beginning to end for both teams played with a keenness and determination to win it and thus to show how much they appreciated the cup. The Principal, Mr. Tireman (Dy cons. of Forests Coorg) and all our Instructors were present. The captain Abdul Hamidkhân was absent on court business and the seniors had to play without him. During the 1st half hour the juniors scored 2 goals. But during the latter part of the 2nd half, the seniors put in 2 goals after a hot struggle. Thus the Match ended in a draw of 2 goals all just as was the case in the previous years, 1916 and 1917.

The match was replayed on the 10th. This game was even more interesting than the last one. It was very exciting and perhaps better play was never seen in any previous contest for the cup. The juniors had a narrow victory by 4 goals to one. The Principal, the

institutor of the cup, then made a short and very instructive speech pointing out to us the object with which it was instituted. It is not only to develop the spirit to play hockey in us and also to create in the students a feeling of brotherhood among those of the same year. The students must not only be proud of the College in which they are trained but also of the year during which they study. He observed that the game was a well fought out and as keen a one as he ever saw. He felt sorry that the seniors had not their goal keeper Y. P. Lakshmayya who was absent owing to illness. He commended the juniors upon their victory though a narrow one. He advised us all to keep up the tradition of the college and to set a good example to the students to come from other parts of India and to prove that Madras is not backward to other places. He then called upon Mr. Dawson to give away the cup to the juniors. Amidst loud cheers, Appayya, the vice captain received it from the hands of Mr. Dawson.

It is interesting to note that the juniors won the cup as has also been the case in every previous year.

The happy function came to a close amidst deafening cheers.

Athletic Records.

The following are the *Records* for the various events in the College sports. They are of interest as facilitating comparison of the present standard of the Athletics in the College with the past and with

records in other institutions. Record events of this year are marked with a cross.

	Event.	Record.	Year.	Name.
1	100 yards Race.	11 1/5 seconds	1918 +	J.A. Mulyal
2	100 yards race for past students ...	12 2/5 ,,	1917	C.S. Nanjappa
3	$\frac{1}{4}$ Mile flat race ...	58 seconds	1916	U.K. Thimmayya
4	$\frac{1}{2}$ Mile flat race ...	2 mins. 23 sec.	1914	Y. S. Chinnigarayan
5	1 Mile flat race ...	5 min. 37 3/5,,	1916	C.S. Nanjappa
6	High Jump ...	4 feet 10 ins.	1918 +	J.A. Mulyal
7	Long Jump ...	17 feet $4\frac{1}{2}$ ins	1917	P.K. Paramaswran Pillai.
8	120 yds. Hurdles Race.	18 4/5 seconds	1918 +	J.A. Mulyal
9	$\frac{1}{2}$mile invitation race ...	2 m. & 15 2/5 ,,	1916	W. Armstead; Stane's High School
10	Throwing the Cricket ball ...	94yds; 2 feet	1917	C.B. Chengappa.

The table below shows the marks obtained by the "*Richmond Championship cup*" winners in the different years and thus their relative merits.

Richmond Championship Cup.

Year.	No. of marks won.	Name of Student.
1913	14 marks.	R. E. Lemos
1914	17 marks.	J. A. P. D. Cruz
1915	19 marks.	C. S. Nanjappa
1916	26 marks.	C. S. Nanjappa
1917	21 marks.	C. B. Chengappah
1918	20 marks.	C. B. Chengappah

Coimbatore, 10—11—18

T. D. Ponniah,
Secretary & Treasurer
M. F. C. A. Club.

Gazette Notifications.

July 30th 1918.

Consequent on the death of P. Lakshmana Chetti, Ranger, fourth grade, Northern Circle, the following promotions are made in the class of Rangers with effect from 4th June 1918.

(1) M. R. Ry. A Swami Kutti, from fourth grade, *sub-pro-tem*, to fourth grade permanent.

(2) Mr. T. T. Ansep, from fifth grade, permanent to fourth grade, *sub-pro-tem.*

(3) Mr. H. Mac Bride, from fifth grade, *sub-pro-tem*, to fifth grade, permanent.

(4) M. R. Ry. K. C. Joseph, from sixth grade, permanent, to fifth grade, *sub-Pro-tem.*

(1) M. R. Ry. A. Ranganayakulu Nayudu, Ranger, fourth grade, now doing duty as the Senior Instructor, at the Vernacular Training School of 1916 in West Caddapah district is, on the close of the School, posted to the charge of Balapalli range, South Caddapah district.

(2) M. R. Ry. S. Chinnadorai Pillai, Ranger, third grade, in charge of Balapalle range, South Caddapah district, is, on relief by No. (1), granted three months privelege leave.

Mr. J. D. David, Ranger, second grade, *sub-Pro-tem*, from Sirvel range, Kurnool South, to kukuluba range, Ganjam.

M. R. Ry. H. Rama Rao, Ranger, second grade *sub-Pro-tem*, from Marrigudem range, Upper Godavari, to Sirvel range, Kurnool South.

M. R. Ry. N. Vijiarangam, Ranger, second grade, from Sivapuram range, Kurnool West, to Marrigudem range, Upper Godavari, To proceed first.

M. R. Ry. B. Punnayya, Ranger, fifth grade, from kukuluba range, Ganjam, to Gundlakumma range, Kurnool South.

M. R. Ry. R Virasami Nayudu, Ranger, fifth grade, on expiry of the leave granted to him, i. e., on 4th August 1918, to Sivapuram range, Kurnool West.

M. R. Ry. S. M. Krishnaswami Ayyar, Ranger, fourth grade, Tinnevelly range, is granted extension of leave one month on medical certificate in continuation of the leave granted to him in this office S. O. No. dated 26th May 1918.

(1) Mr. B. N. Salisbury, Ranger, third grade, is, at the close of the session ef the Vernacular Training School, posted to the charge of Dharmapuri range, North Salem division.

(2) M. R. Ry. C. Rajagopal Nayudu, Ranger, second grade on relief by No. (1), is, posted to the charge of Harur range, South Salem division.

(5) Saiyyid Munavar Sahib, Ranger, sixth grade, on relief by No. (2) is, posted to Salem East range, South Salem to work under the orders of the Range Officer.

(4) A. P. Meckoy, acting Ranger, sixth grade, will, at the close of the Vernacular Training School, revert to Deputy Ranger, first grade, and is posted to West Vellore division to work under the orders of the District Forest officer.

M. R. Ry. S. Ramanjum Sesha, Deputy Ranger, first grade and acting Ranger sixth grade, is confirmed as Ranger, sixth grade, with effect from 1st July 1918.

W. A. Mekkeri Sahib, Ranger, fourth grade, is, on return from leave, posted to South Salem division for special duty under the D. F. O.

AUGUST 6TH 1918.

M. R. Ry. T. K. Ramaswami Ayyar, Ranger, second grade *Sub-protem* North Cuddapa District, is reverted to his permanent post of Ranger in the third grade with effect from 24th July 1918.

M. R. Ry T. K. Ramaswami Iyer, Ranger, second grade, *Sub-protem* in charge of Sidhout range, North Cuddappa District is granted combined leave for four months (4 weeks previlege leave and 3 months and 2 day's leave on medical certificate on half pay) with effect from 24th May 1918.

M. R. Ry. T. M. Duraiswamy Pillai, acting Probationary Ranger, sixth grade will be considered to have been on special duty in the Nellore District after his relief form range charge from 15th to 17th July 1918 both days inclusive.

(1) M. R. Ry. C. M. Kunhi Raman Nair, Ranger, Fourth grade in charge of Rajampet range, South Cuddappah District is granted previlege leave for 6 weeks with effect from date of relief.

(2) Mahammad Abdul Hafiz Sahib Bahadur, probationary Extra Assistant Conservator, attached to South Cuddappah District is posted to the charge of Rajampet Range of the same District as a temporary measure, vice No. (1) on leave.

M. R. Ry. V. P. Narayana Menon Ranger, Fourth grade in charge of Badvel Range North Cuddappah District will be considered to have been in additional charge of Porumamilla Range of the same District during the period from 20th May 1918 afternoon to 14th July 1918 afternoon both days inclusive.

M. R. Ry. A. Sidda Pillai Ranger Fifth grade on relief of Porumamlla Range charge North Cuddappah District by No. (1) is posted to Sidhout Range charge of the same district *vice* Ranger M. R. Ry. T. K. Ramaswami Ayyar granted four months combined leave from 23rd May 1918 afternoon.

P. A. Krishnaswami Mudaliyar Ranger Sixth grade is on return from leave posted to the charge of cumbum Range, Madura District.

M. R. Ry. S. Venkitaswami Naidu, Temporary Ranger, Sixth grade on working plans duty, is granted extension of previlege leave for fifteen days in continuation of one month's previlege leave granted to him from 3rd July 1918—(vide this office No. 1245 dated 15th July 1918.)

The following appointments of Rangers are ordered with effect from 1st July 1918.

(1) J. S. Rowland, Deputy Ranger, South Malabar, to act as Ranger, Sixth grade *sub-pro-tem.*

(2) A. B. Fenn Deputy Ranger, Second grade, North Coimbatore to act as Ranger, Sixth grade, *sub-pro-tem.*

(3) C. Vasu Deputy Ranger, Second grade, North Malabar. to act as Ranger Sixth grade *sub-pro-tem.*

(4) T. Kondathu Goundan, Deputy Ranger, Second grade, the Nilgiris to act as Rangers Sixth grade *sub-pro-tem.*

On handing over charge of the /amans of the Vernacular Training School at Coimbatore, M. R. Ry. C. Naayanan Ranger, third grade will return to his charge of Kollagal Range.

August 20th 1918.

Mr. W. C. Hart. Extra Assistant Conservator of Forest, is granted privilege leave for one month with effect from the 18th July '18.

Mr. W. C. Hart, E. A. C. of Forests, is transferred from the Western Circle to the Central circle.

The following candidate is declared to have passed the Forest departmental examination provided for in section 68 of the Madras Forest Code held on 31st July 1918 and the rest have failed :—

CODE AND ACCOUNT.

P. Subrahmanyam, fourth clerk, District Forest Office, West–

CUDDAPAH — SECOND CLASS.

In modification of this office S. O. No. 58, dated 1st May 1918, the following postings are ordered.

(1) M. R. Ry. G. Devanayagam Nayudu, Ranger, sixth grade, is posted for special duty in West Vellore Division for delimitation work in the Javadis.

(2) Saiyid Vagi-ud-din Sibgat-ul-lah Sahib, acting Ranger, sixth grade, to continue in charge of Alangayam Range.

Under art. 260, C. S. R. M. R. Ry. B. Sambamurti Ayyar, Ranger, sixth grade, Mudumalai range, Nilgiri district, is granted one month's privilege leave from 1st. September 1918.

(2) T. Kondathu Goundan, Ranger sixth grade, *sub-pro-tem* Mudumalai, will relieve No. (1) and be in charge of the range for the period of the leave.

The following candidates have passed the Departmental test under section 58 of the Forest code held in July 1918.

FOREST CODE & ACCOUNTS.

R. Vasudeva Rao, Acting head clerk, District Forest Office, Mangalore North, first class.

V. Margabundu Ayyar, Range clerk, Tirupathur, West Vellore division — second class.

BOARD'S STANDING ORDERS.

(1) G. R. Venkateswara Ayyar, acting second clerk District Forest office, South Coimbatore, first class.

(2) P. Seshadri Ayyangar, second clerk, District Forest office, The Nilgiris, second class.

August 27th 1918.

Mr. W. C. Hart, Extra Assistant Conservator of Forests transferred to Central circle, is posted to Chittor district to work under the orders of the District Forest officer in connection with the preparation of working plans.

Mr. W. S. Fernandez, Ranger, fourth grade, Ganjam, is granted leave on medical certificate for One month and eighteen days with effect from the afternoon of 25th April 1918 under art. 336 of the C. S. R.

SEPTEMBER 3RD 1918.

Mr D. E. Lewin, Ranger, sixth grade, in charge of Vempalle Range, West Cuddapah district, is transferred to Muddanoor Range charge of the same district — (to proceed forthwith.)

M. R. Ry. R. Krishnaswamy Ayyar, Probationary Ranger, sixth grade, in charge of Muddanoor range, West Cuddappah district, is on the relief of the range charge by No. 1, posted to the charge of Vempalle range of the same district.

M. R. Ry. K. L. Muniswamy Ayyar, Ranger, second grade, on return from leave, is posted to the charge of Ambur range.

M. R. Ry. R. Jayaraman, Ranger, sixth grade, supernumerary, is posted to the charge of Arcot range till M. R. Ry. V. D. Ramalingam, ranger fifth grade, *sub-pro-tem,* returns from leave.

M. R. Ry. V. D. Ramalingam Pillai, Ranger, fifth grade, *sub-pro-tem,* is granted combined leave for three mohtns, i. e., privilege leave for two months and twenty six days and leave on medical certificate for four days from 5th August 1918.

P. A. Krishnasawmi Mudaliar, Ranger, sixth grade, Tinnevelly district is granted two week's extension of privilege leave in continuation of one months privilege leave granted to him from 28th July 1918 in Tinnevelly D. F. O's. S. O. No. 213 dated 15th July 1918.

The leave on medical certificate, under art. 336 C. S. R. for 3 months granted to M. R. Ry. Krishnan Nayar, Ranger, fourth grade, The Nilgiris in this office S. O. Nos. 48 and 104 of 1918 dated 15th March and 3rd July 1918 respectively is further extended by three months and twenty days.

September 10th 18.

M. R. Ry. P. Dhananjaya Rao, Ranger, sixth grade in charge of Kalyandrug range, Anantapur district is posted to the charge of Bukkapatnam range of the same district.

M. R. Ry. B. V. Vaidiswara Ayyar, Ranger, sixth grade, in charge of Bukkapatnam range, Anantapur district, is, on relief of the range charge by No. (1) transferred to the charge of kalyandrug range of the same district.

In this office S. O. No. 141 of 1918 dated 26th August 1918, regarding grant of medical leave to Ranger Krishnan Nayar, Nilgiri division *for* "extended by three months and twenty days" *read* "extended by five months and thirteen days up to 22nd October inclusive."

September 17th 1918.

Under articles 233, 260 and 316 of the C. S. R., Mr. J. S. Scot, D. F. O., North Salem, is granted combined privilege leave and special leave on urgent private affairs for two months with effect from the date of relief.

M. R. Ry. Rai Sahib E. C. M. Mascarenhas, D. F. O. South Salem, to hold charge of North Salem, in addition to his own duties.

Mr. G. C. Robinson, working plans officer, Southern Circle, to be D. F. O., South Malabar from or after 1st December 1918.

M. R. Ry. E. V. Padmanabha Pillai, D. F. O., Cuddapah west, on return from leave, to be D. F. O. Chittoor.

(The posting of M. R. Ry. E. V. Padmanabha Pillai to Kollegal ordered in notification No. 276, dated 1st June 1918, is cancelled.)

M. R. Ry. T. K. Ramasawmi Ayyar, Ranger, third grade, on return from leave, is posted to the charge ot Kadiri range, Anantapur district.

M. R. Ry. R. Alagiriswami Nayudu, Ranger, fifth grade, in charge of Kadiri range, Anantapur district, on relief by No. (1), is posted to the charge of Vontimitta range west Cuddapah district.

S. M. Razvi Sahib, Ranger, fifth grade, in charge of Vontimitta

range, west Cuddapah district, on relief by No. (2), is posted to Chingleput district for the charge of the new Sriperumbudur range, which is to be formed shortly.

In modification of this office, S. O. No. 107, dated 27th July 1918, M. R. Ry. T. K. Ramaswami Ayyar, Ranger, second grade *sub-pro-tem*, in charge of Sidhout range, North Cuddapah district, is granted combined leave for four months with effect from 24th May 1918.

(1) M. R. Ry. S. Sundaravaradhachari, Ranger, fifth grade, is, on return from leave, posted to Srivilliputhur range.

(2) M. R. Ry. P. A. Krishnaswami Mudaliyar, is on return fiom leave posted to do duty under the D. F. O. west Vellore.

(3) A. K. Anantharama Ayyar, Deputy Ranger, second grade, on relief by No. (1) is posted to do duty under the D. F. O. Tinnevelly.

September 24th 1918.

Mr. R. F. Colaco, first grade Ranger in coorg, is appointed as E. A. C. of Forests in the Madras Presidency and his services are placed at the disposal of the Honourable the Chief Commissicner of Coorg with effect from the date of his entering upon his new duties.

Mr. R. F. Madan, D. F. O., west Kurnool division, is granted privilege leave for one month with effect from 17th August 1918.

Mr. G. W. Thompson, D. F. O., South Kurnool division will hold charge of the west kurnool division, in addition to his own duties during the absence on leave of Mr. Madan or until further orders.

Under art. 260 of the C. S. R., B. Gulam Dustagir, Acting

Ranger, sixth grade, Kurnool South, is granted privilege leave for two months with effect from date of relief.

M. R. Ry. N. K. Sarma, Ranger, fourth grade, from Ganjam to Golgonda range, Vizagapatam.

M. R. Ry. T. Srinivasachari, Ranger, fifth grade, from Vizagapatam to Rachakonda range, Kurnool East.

The following probationary and supernumerary Rengers, sixth grade, are confirmed as Rangers, sixth grade, with effect from 1st July 1918.

(1) M. R. Ry. G. N. Subba Rao, Probationary Ranger.

(2) M. R. Ry. M. R. Duraisawmi Ayyar, Supernumerary Ranger.

(3) M. R. Ry. S. M. Srinivasagam Pillai, Supernumerary Ranger.

October 1st 1918.

M. R. Ry. P. Venkataramanan Avergal D. F. O. Upper Godaveri, is granted privilege leave for one month with effect from 3rd September 1918.

Mr. F. A. Seager, D. F. O. Lower Godaveri will hold charge of the Upper Godaveri division in addition to his own duties during the absence on privilege leave of M. R. Ry. P. Venkataramanan or until further orders.

M. R. Ry. J. Ramalingam, Supernumerary ranger, Sixth grade, South Salem, is granted privilege leave on medical certificate for three months from 1st August 1918.

October 8th 1918.

Under article 260 of the C. S. R. Mr. H. F. A. Wood D. F. O. S. Coimbatore is granted privilege leave for 6 weeks with effect from date of relief.

Mr. H. F. A. Wood, D. F. O. (on leave) to act as Conservator of Forests, Southern circle, vice Mr. P. M. Lushington retired. He should join his appointment forthwith.

Muhammad Habib-ul-lah Sahib Bahadur, E. A. C. to be D.F.O. S. Coimbatore vice Mr. H. F. A. Wood granted leave.

Mr. F. J. Marshall, Temporary Forest Engineer, is granted privilege leave for three weeks with effect from date of relief.

October 15th 1918.

Under article 260 of C. S. R. Mr. F. X. Mascarenhas Special Veterinary inspector of the Forest department is granted privilege leave for two months and 13 days with effect from the 10th August 1918.

Mr. F. R. Madan D. F. O. W. Kurnool to be in charge of the E. Kurnool division in addition to his own duties.

M. R. Ry. S. D. Devadoss Pillal Special Veterinary assistant inspector of the Forest department, to act as Special Veterinary inspector with effect from 10th August 1918 during the absence of Mr- F. X. Mascarenhas on privilege leave.

Mr. D. A. Starcey E. A. C., on leave, is recalled to duty and posted to assist Mr. F. R. Madan D. F. O. W. Kurnool division.

M. R. Ry. K. Gajaraja Mudaliar avl. is on relief as D. F. O E. Kurnool division posted to work under the D. F. O. Ganjam.

The six weeks' privilege leave granted from 23rd August 1918 to M. R. Ry. C. M. Kunhiraman Nair, Ranger, IV grade in charge of Rajampet range in extended by 19 days. The existing arrangement to continue.

October 22nd 1918.

M. R. Ry. A. R. Narasimha Ayyangar Avl., Muhammad Abdul, Hafiz Sahib Bahadur, and Mr. Roland Mitchell are confirmed as Extra Assistant Conservators of Forests with effect from 26th October 1916, 25th July 1918, and 26th July 1918 respectively.

The unexpired portion of the privilege leave for one month granted to Mr. F. R. Madan D. F. O. W. Kurnool, viz, 9th to 16th September, is cancelled.

Mr. G. C. Robinson, Assistant Conservator of Forests, W. Circle, is granted privilege leave for one month from or after 21st October 1918.

M. R. Ry. M. R. Sundram Ayyar avl. E. A. C. is posted to W. Cuddapah, to work on special duty in conjunction with the D. F. O. in connection with the preparation of Working Plans for the Red Sanders Timber Improvement Working circles.

S. M. Razwi Sahib, Ranger V grade on relief of Vontimitta range charge, W. Cuddapah dt. is posted to the charge of Sathiavedu range, chingleput dt.

M. R Ry. N. C. Mahadevan pillai Ranger IV grade, in charge of Sathiavedu range, on relief by No. (1) is posted to the charge of the new Sriperumbudur range of the same district.

(1) M. R. Ry. K. R. Viswanatha Ayyar Ranger, IV grade in charge of Satenapalle range, Guntur district, is granted privilege leave

for 2 months and ten days with effect from 9th October 1918, the date of handing over charge to M. R. Ry. B. K. Krishna Rao, Ranger IV grade in charge of Vinukonda range of the same district as a temporary measure.

(2) Mr. T. John acting ranger VI grade on probation working under the orders of the D. F. O. Chingleput dt. is posted to the charge of Satenapalle range Guntur dt. vice No. (1) on leave.

S. Venkatasami Naidu, Dy. Ranger I grade and acting ranger VI grade is confirmed as ranger VI grade with effect from 1st July '18.

Advertisements.

* The following timbers are still unrepresented by long or short panels in the Gass Forest Museum. The Principal would be grateful for any contributions towards rectifying the deficiencies : the dimensions of long panels should be, *roughly*, 3″ thick about 6′ long and as broad as available : and of short panels 1″ × 2′ × 1′

No.	Botanical Name.		No. required Long panel.	No. required Short panel.
1	* Dillenia indica	...	1	0
2	Dillenia pentagyna	...	1	0
3	Hydnocarpus Wightiana	...	1	1
4	Poeciloneuron pauciflorun	...	1	1
5	Vateria indica	...	1	0
6	Eriodendrun anfractuosum	...	1	1

No.	Botanical Name.		No. required. Long panel.	No. required. Short panel.
7	Sterculia foetida	...	1	1
8	Sterculia villosa	...	1	0
9	Sterculia guttata	...	1	0
10	Heritiera papilio	...	0	1
11	Helecteres Isora	...	1	1
12	Grewia tiliaefolia	...	1	0
13	Grewia asiatica	...	0	1
14	Erythroxylon monogynum	...	1	0
15	Canarium strictun	...	1	1
16	Ximenia Americana	...	1	1
17	Mangifera indica	...	1	0
18	Dalbergia paniculata	...	1	1
19	Pterocarpus Santalinus	...	1	0
20	Hardwickia pinnata	...	1	1
21	Tamarindus indica	...	1	0
22	Acrocarpus fraxinifolius	...	1	0
23	Acacia catechu	...	1	0
24	Acacia sundra	...	1	0
25	Acacia dealbata	...	1	1
26	Albizzia procera	...	1	1
27	Albizzia stipulata	...	1	0
28	Carallia integerrima	...	0	1
29	Terminalia belerica	...	1	1
30	Terminalia chebula	...	1	0
31	Lagerstrœmia lanceolata	...	0	1
32	Tetrameles nudiflora	...	0	1

No.	Botanical Name.		No. required. Long panel.	No. required. Short panel.
33	Morinda citrifolia	...	1	0
34	~~Bassia latifolia~~	...	0	1
35	Bassia longifolia	...	0	1
36	~~Mimusops hexandra~~	...	1	1
37	~~Diospyros montana~~	...	1	0
38	Diospyros embryopteris	...	1	0
39	Diospyros tomentosa	...	1	1
40	Diospyros melanoxylon	...	1	0
41	Diospyros paniculata	...	1	1
42	Holarrhena antidysenterica	...	1	1
43	Wrightia tinctoria	...	1	0
44	Alstonia scholaris	...	1	1
45	Cordia Rothii	...	1	0
46	Stereospermum chelonoides	...	1	0
47	Premna tomentosa	...	1	0
48	Gmelina arborea	...	1	0
49	Gmelina asiatica	...	1	1
50	Vitex altissima	...	1	0
51	Myristica malabarica	...	1	1
52	Cinnamomum iners	...	1	0
53	Cinnamomum zeylanicum	...	1	0
54	Alseodaphne grandis	...	1	0
55	Litsaca zeylanica	...	1	0
56	Machilus macrantha	...	0	1
57	Glochidion nilghirensis	...	0	1
58	Bischofia javanica	...	1	0

No.	Botanical Name.		No. required. Long panel.	No. required. Short panel.
59	Givotia rottieriformis	...	1	0
60	Mallotus philippinensis	...	1	1
61	Cleistanthus collinus	...	0	1
62	Aleurites moluccana	...	1	0
63	Ficus bengalensis	...	1	0
64	Ficus tomentosa	...	1	1
65	Aglaia Roxburghiana	...	1	1
66	Aquilaria Agallocha	...	1	1
67	Berrya Ammonilla (Trincomali wood)		1	1
68	Cedrus Deodara (Deodari)	...	1	1
69	Cynometra Ramiflora	...	1	1
70	Dalbergia lanceolaria	...	1	1
71	Dalbergia sissoo	...	1	1
72	Elaeodendron glaucum	...	1	1
73	Guazuma tomentosa	...	1	1
74	Pithecolobium bigeminum	...	1	1
75	Schrebera swietenoides	...	1	1

13—8—18.

[N. B. As numbers 11, 12, 17, 18, 21, 34, 36, 37, have since been received, they will not be required.]

3--12—18.

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,,	XXX	1904	No. 11—issue for November.

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Madras Forest College,
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